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An Archeological Survey of the Battle Flat Watershed Experimental Chaparral Conversion Project, Crown King Ranger District Prescott National Forest Culture History and Prehistoric Land Use in the Bradshaw Mountains of Central Arizona

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AN ARCHEOLOGICAL SURVEY OF THE BATTLE FLAT WATERSHED EXPERIMENTAL CHAPARRAL CONVERSION PROJECT, CROWN KING RANGER DISTRICT PRESCOTT NATIONAL FOREST:

CULTURE HISTORY AND PREHISTORIC LAND USE IN THE BRADSHAW MOUNTAINS OF CENTRAL ARIZONA

By

J. Scott Wood
Tonto National Forest

November 1978

Cultural Resources Report

USDA FOREST SERVICE
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Eighteen prehistoric sites were discovered and recorded in the Battle Flat area of the Prescott National Forest, Arizona. Sites appear to be rural Hohokam and aspects of social patterning and settlement are discussed. The project was conducted as part of a watershed conversion project.

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Introduction

An experimental program of chaparral conversion has been proposed for the Battle Flat and Tuscumbia Basin Watersheds, Crown King Ranger District, Prescott National Forest. To comply with Federal regulations, an archeological survey and inventory of the area within the Battle Flat Watershed was conducted between 19 December 1977 and 5 January 1978. The survey was undertaken at the request of the Forest Supervisors of the Prescott and Tonto National Forests, in response to requests from the Regional Forester's office. Principal investigator for the project was Dee Green, Regional Archeologist. Project Director was J. Scott Wood, Tonto National Forest Assistant Archeologist. Crew members included Dave Abbott, Robert Buitron, Joel Johnstone, and Rex Tjaden of the Tonto National Forest. Additional assistance in a variety of areas was provided by Raven McReynolds and Harlow Yaeger, Prescott National Forest Liaison Officer and Paraprofessional Archeologist.

The Battle Flat Watershed Experimental Chaparral Conversion Project (Figures 1 and 2), as proposed, involves a combination of operational vegetation manipulation and research in a multiple use demonstration area which encompasses the Battle Flat and Tuscumbia Watersheds. These two adjacent watersheds lie at the divide between the major drainage systems of the Agua Fria and Hassayampa Rivers. Battle Flat and Tuscumbia Creek flow east into the Agua Fria via Turkey Creek and Black Canyon. The Battle Flat Watershed (2,225 acres) is the one selected for treatment, while the Tuscumbia Watershed (1,365 acres) is to be reserved as a control for the calibration of runoff during the conversion.

The proposed treatments under consideration for the conversion program are of two types: mechanical and nonmechanical. The mechanical treatments being considered are rootplowing and brush crushing. The lower parts of the valley (below 20 percent slope), will be rootplowed. A Marden brush-crusher will be used where a rootplow-equipped bulldozer is not suitable. Nonmechanical treatments proposed are burning and the use of registered phenoxyl herbicides. For the purposes of comparison, the Battle Flat Watershed has been divided into seven subwatersheds (Figure 3) on the basis of topography, exposure, and vegetative cover density.

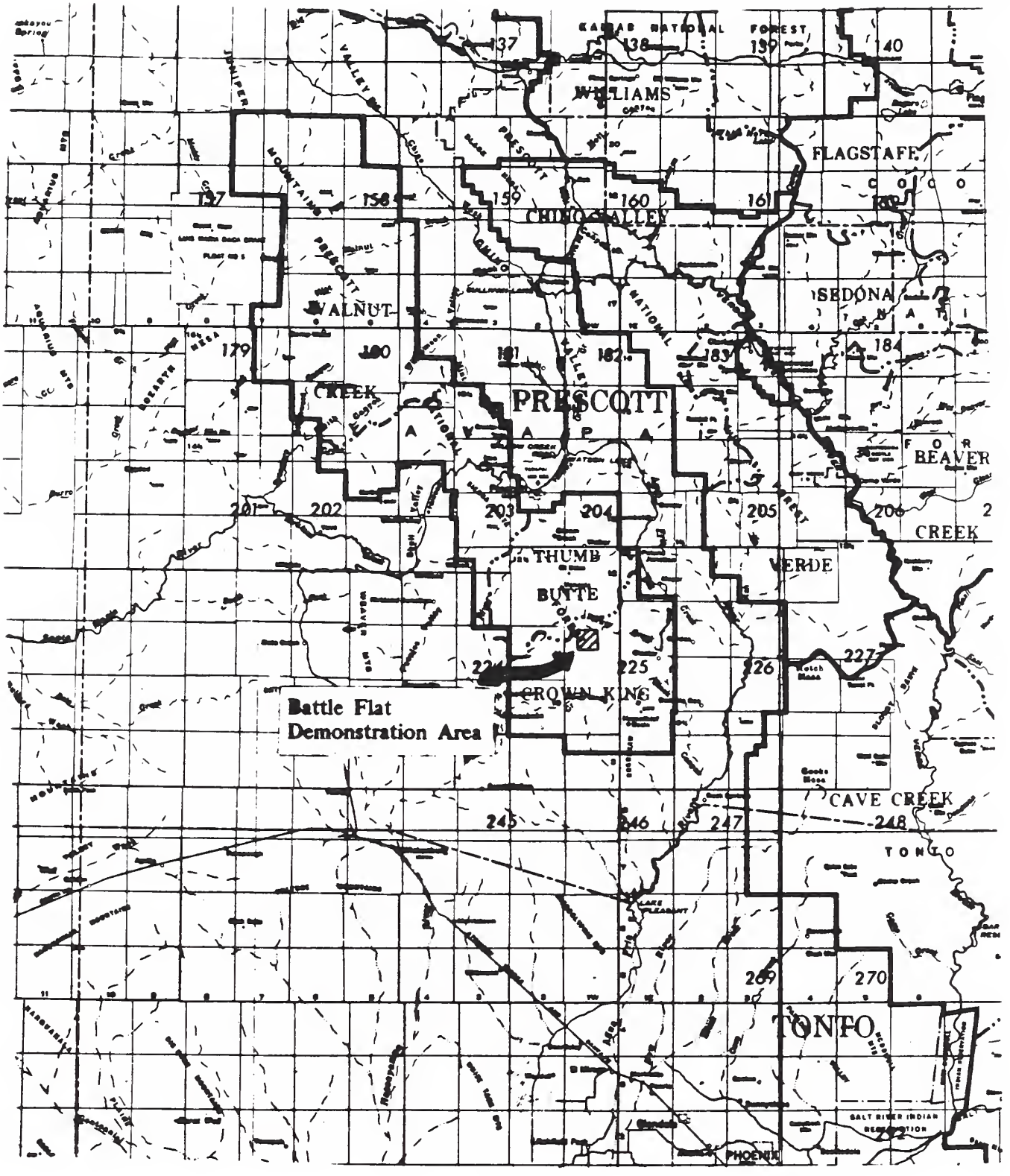

Figure 1. Battle Flat Project Area Location Map

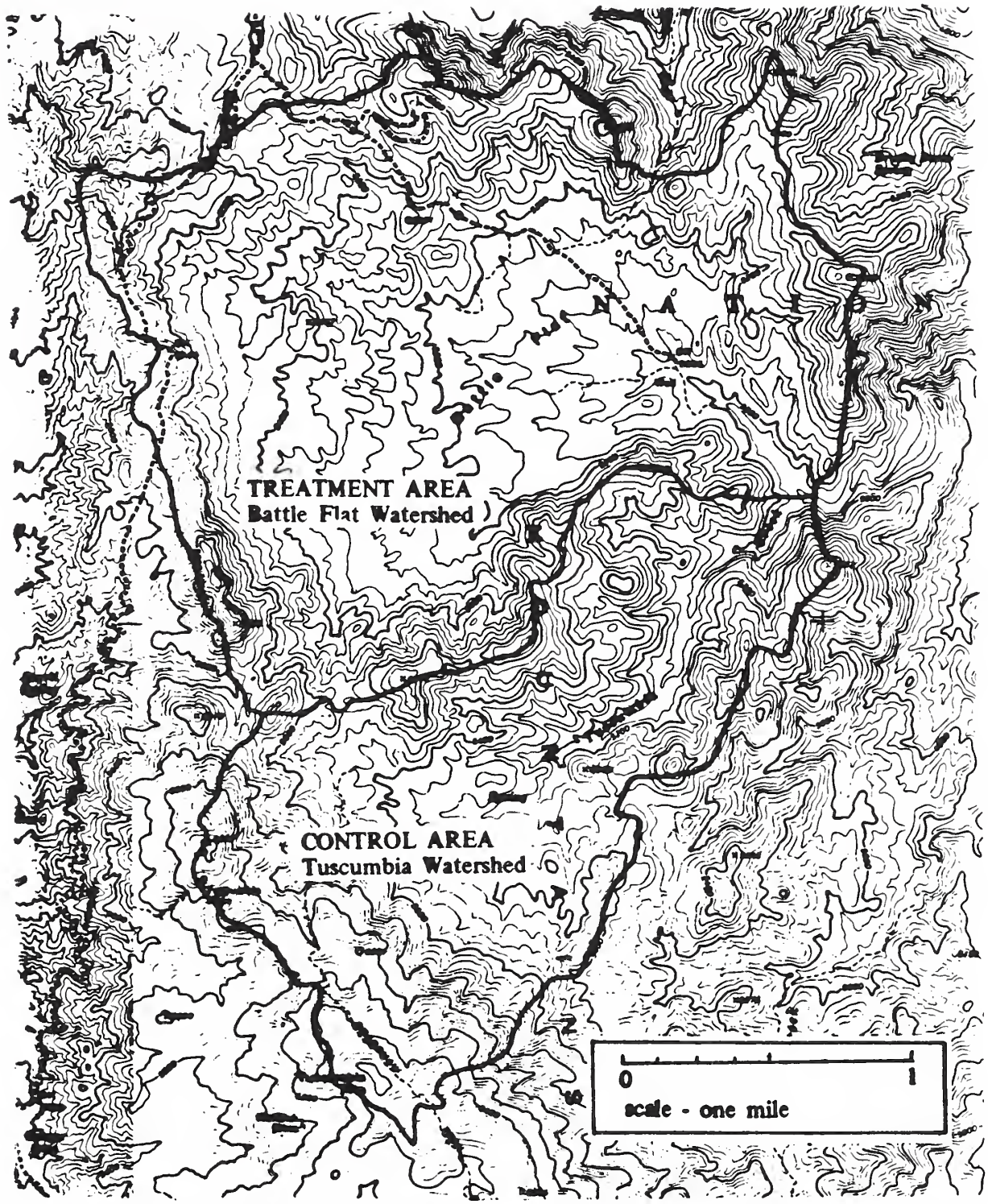

Figure 2. Boundaries of the Battle Flat Chaparral Conversion Watersheds

Figure 3. Battle Flat Project Subwatershed Boundaries

Environment of the Watershed

The Battle Flat Watershed is located in the Basin and Range Physiographic Province, at approximately the center of the Bradshaw Mountains of Central Arizona on the divide between the Agua Fria drainage to the east and the Hassayampa drainage to the West. The central divide region is an area of extremely rugged, mountainous terrain ranging in elevation from 5,000 to 7,000 feet. The area is extremely dissected by a number of perennial and seasonal drainages cutting steep, narrow canyons. Also included in the area are occasional small interior basins, such as Battle Flat, Pine Flat, Tuscumbia Basin, Johnson Flat, and Minnehaha Flat.

The general geologic composition of the Battle Flat area is usually described as Bradshaw granite and Yavapai schist, both pre-Cambrian (Jagger and Palache, 1905). The basin of Battle Flat itself is described as a stock of monzonite porphyry or granitic schistose gneiss, laced with quartz-metallic veins. Nearby are lenses of schistose conglomerate. These facies are delineated in Figure 4. Recently, this description has been questioned and the area described as a "crystaline tuff" bordered by a grano-diorite (Gassaway Brown, III, Geologist, personal communication). The field observations of this survey tend to support the previous assessment.

Soils in the Battle Flat Watershed, according to the Yavapai County Soil Survey (Wendt, G. E., et al., 1976) include the alluvial Lynx loam, Moano rocky upland loams, an association of mixed Moano and lynx parcels, and several of the Barkerville stony upland soils series. The distribution of these types is shown in Figure 5 and Table 1. The Lynx soils in the Battle Flat Watershed are extremely deep, over three meters in places. This blanket of sediment, which thins to nothing at the outer edges of the basin, is underlain by a solid bedrock, at least in the southern half, and appears to have considerable moisture storage capacity. These properties of the regolith, combined with the structure and componential characteristics of Lynx loam, indicate that Battle Flat might contain an important agricultural resource under the proper climatic conditions.

A major consideration in describing the soil situation in the Battle Flat Watershed is erosion. The Lynx loam soils that make up the watershed bottoms are highly susceptible to both sheet and gully erosion (Wendt, et al., 1976). In large part, due to this and to land use patterns operating in the watershed, a complex and highly

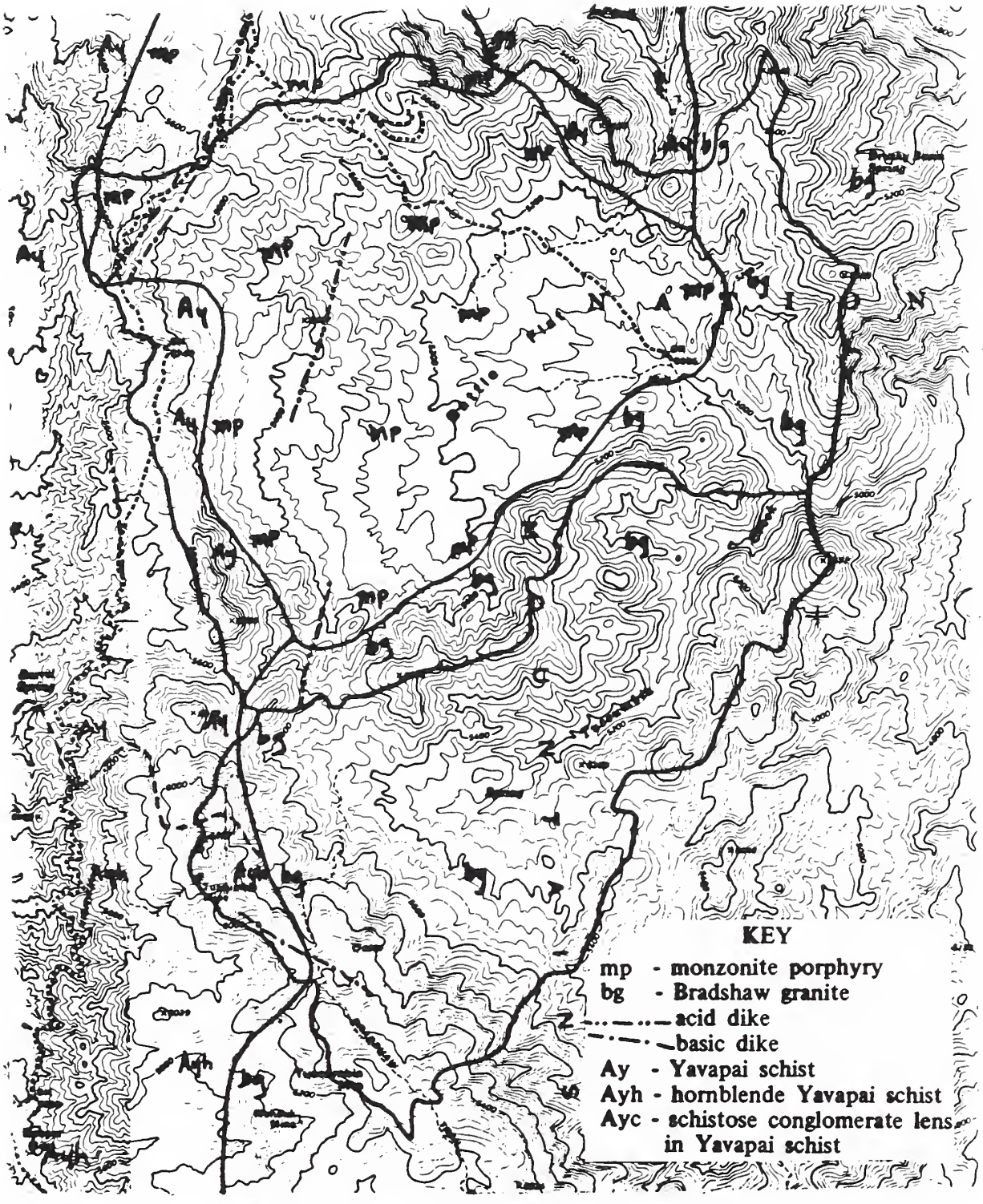

Figure 4. Battle Flat Project Geology

Figure 5. Battle Flat Project Soils, see Table 1 for Key

Table 1. Soils Mapping Key

Symbol	Name
AxD	Arp-Moano Complex, 0-30 percent slopes
BmF	Barkerville cobbly sandy loam, 20-60 percent slope
BoF	Barkerville extremely rocky sandy loam, 20-60 percent slopes
Cx	Cordes sandy loam
DaF	Dandrea gravelly loam, 20-60 percent slopes
Ly	Lynx Soils
MbF	Mirabal gravelly sandy loam, 20-60 percent slopes
MbF	Mirabal-Dandrea complex, 20-60 percent slopes
MgD	Morano gravelly Loam, 0-30 percent slopes
MkF	Moano very rocky loam, 15-60 percent slopes
MrC	Moano-Lynx association, rolling

Table 2. Vegetation Map Key

Symbol	Association
1	Ponderosa, Emory Oak, Alligator Juniper overstory; light understory, locally dominated by different species, includes: Manzanita, Turbinella Oak, Fendler Ceanothus, Mountain Mahogany, Squawbush, and occasional Mimosa and Sugar Sumac.
2	Similar to (1) with the addition of Grey Oak in canopy.
3	Emory Oak, Alligator Juniper Woodland with light to heavy understory similar to (1).
4	Mixed chaparral with localized Emory Oak, Alligator Juniper overstory. Includes Turbinella Oak, Manzanita, Mountain Mahogany, Squawbush, Sugar Sumac, Mimosa, Buckhorn, and Silk Tassel.
5	Manzanita - dominated chaparral.
6	Battle Fire Recovery - mixed fire succession association locally dominated by Turbinella Oak, Apache Plume, and Yerba Santa.
7	Riparian association - Canopy of Netleaf Hackberry and Black Walnut. Understory of light mixed chaparral.

destructive erosional episode has developed. This erosion is worst in the deeper soil areas and involves both surface removal and channel trenching. Several of these gullies are over three meters deep and have begun cutting into the soft, fractured upper bedrock. The gully cutting is apparently quite recent and according to Tom Chacon, Crown King District Ranger, began less than 15 years ago. Elsewhere in the watershed, soil cover is also being lost, so that in many areas all the vegetation is now pedestalled between numerous small runoff channels. Overall, this erosional pattern has resulted in a significant alteration of the former land surface and in many cases actively threatens the integrity of cultural properties.

The climate of the Battle Flat Watershed area is fairly typical of the semi-isolated mountain ranges found around the northern and eastern edge of the Sonoran Desert. Measured annual rainfall in the watershed averages 23 inches (Chacon, personal communication). This is somewhat less than the annual average recorded for Crown King, located approximately 7 miles south of Battle Flat at an elevation of 6,000 feet, equivalent to the upper edge of the Battle Flat Watershed. Nevertheless, the data available for Crown King may be used as a general indicator of climatic conditions in the demonstration area. Rainfall at Crown King averages approximately 26 to 27 inches, ranging from 42 inches to 14 inches per year (Chacon, personal communication; Green and Sellers, 1964). Probability of receiving over 20 inches per year is almost 70 percent. Approximately 15-20 percent of this average annual rainfall comes as winter snow, which may fall at any time of the year, but which is most prevalent between October and May (Green and Sellers, 1964). While no temperature data is available for Crown King, extrapolation from figures available for Prescott (Sellers and Hill, 1974) is probably acceptable. Prescott is located approximately 18 miles north-northwest of Battle Flat, at an elevation of 5,355 feet, equivalent to the median elevation within the watershed. Mean daily temperature in Prescott is about 69° F (20.5° C) with an annual maximum range of from 103° F (39.4° C) to -21° F (-29.4° C).

Growing season in Prescott is approximately 140 days on the average, with the last hard frost of winter coming on May 19 and the first coming October 6. Rainfall patterning is similar for both Prescott and Crown King, being nominally biseasonal with some concentration in the summer. Since average rainfall at Prescott (18 inches) appears to be somewhat lower than at Battle Flat, the range and averages of temperatures and growing seasons at the watershed will be somewhat lower than at Prescott (Lowe, 1964). In terms of climatic agricultural potential, the Battle Flat Watershed receives sufficient rainfall but maintains a somewhat marginal growing season.

Vegetation in the Battle Flat area (Figure 6) is a fairly homogenous Arizona chaparral with isolated pockets of pine-oak-juniper woodland and forest in the cold air drainages of the interior basins and on the higher ridge and mountain tops to the north and south. The Battle Flat Watershed itself is a mosaic of approximately seven vegetative associations or stands, described in Figure 8 and Table 2. The floor of the basin supports a small stand of pine-oak-juniper woodland. The canopy of this stand is made up of ponderosa (Pinus ponderosa), Emory oak (Quercus emoryi), and alligator juniper (Juniperus deppeana). One small section of this association includes a stand of grey oak (Quercus grisea). The understory of this association is relatively sparse and is distributed in small isolated pockets. These pockets are small stands or mottes of chaparral. While most of these are mixed associations, occasional conspecific stands of manzanita (Arctostaphylow pungens) or Buckbrush (Ceanothus fendleri) are seen occasionally. Other species found in the woodland understory are shrub live oak (Quercus turbinella), mountain mohogany (Cercocarpus betuloides), squawbush or skunkbush (Rhus trilobata), and an occasional sugar sumac (Rhus ovata), buckthorn (Rhamnus crocea), or wait-a-minute bush (Mimosa biuncifera). Around the edge of the pine association there is an ecotonal Emory oak-alligator juniper woodland overstory with a relatively dense mixed chaparral understory. The major portion of the rest of the watershed supports a mixed chaparral association ranging in density from 40 to 70 percent cover (Duane Knipe, USFS Rocky Mountain Experimental Station, personal communication). This chaparral is primarily shrub live oak with mountain mahogany (more common to the west), manzanita (more common to the north and east), squawbush, sugar sumac (more common to the west), silk tassel (Garrya wrightii) (more common to the west) and occasional individual buckthorn and mimosa. Another type of chaparral, dominated by manzanita, cover the rocky hillslopes of the northwest portion of the watershed. Few species other than sugar sumac and silk tassel co-occur with the manzanita in this stand. A sixth association within the local chaparral formation is the Battle Fire Recovery association, locally dominated by shrub live oak, apache plume (Fallugia paradoxa) and yerba santa (Eriodictyon angustifolium). The last separable association in the watershed is a small riparian stand in the southwest corner of the survey area. This stand, probably supported by a seasonal spring or seep, consists of a number of netleaf hackberry (Celtis reticulata) and black walnut (Juglans major) with an understory of low density, mixed chaparral. The forb and grass understory throughout the watershed is primarily snakeweed (Gutierrezia sarothrae) with occasional small patches of grama grass (Bouteloua sp.). Occasional species include rare individual agave (Agave parryi) in the eastern part of the watershed and datil yucca (Yucca baccata) in the western part.

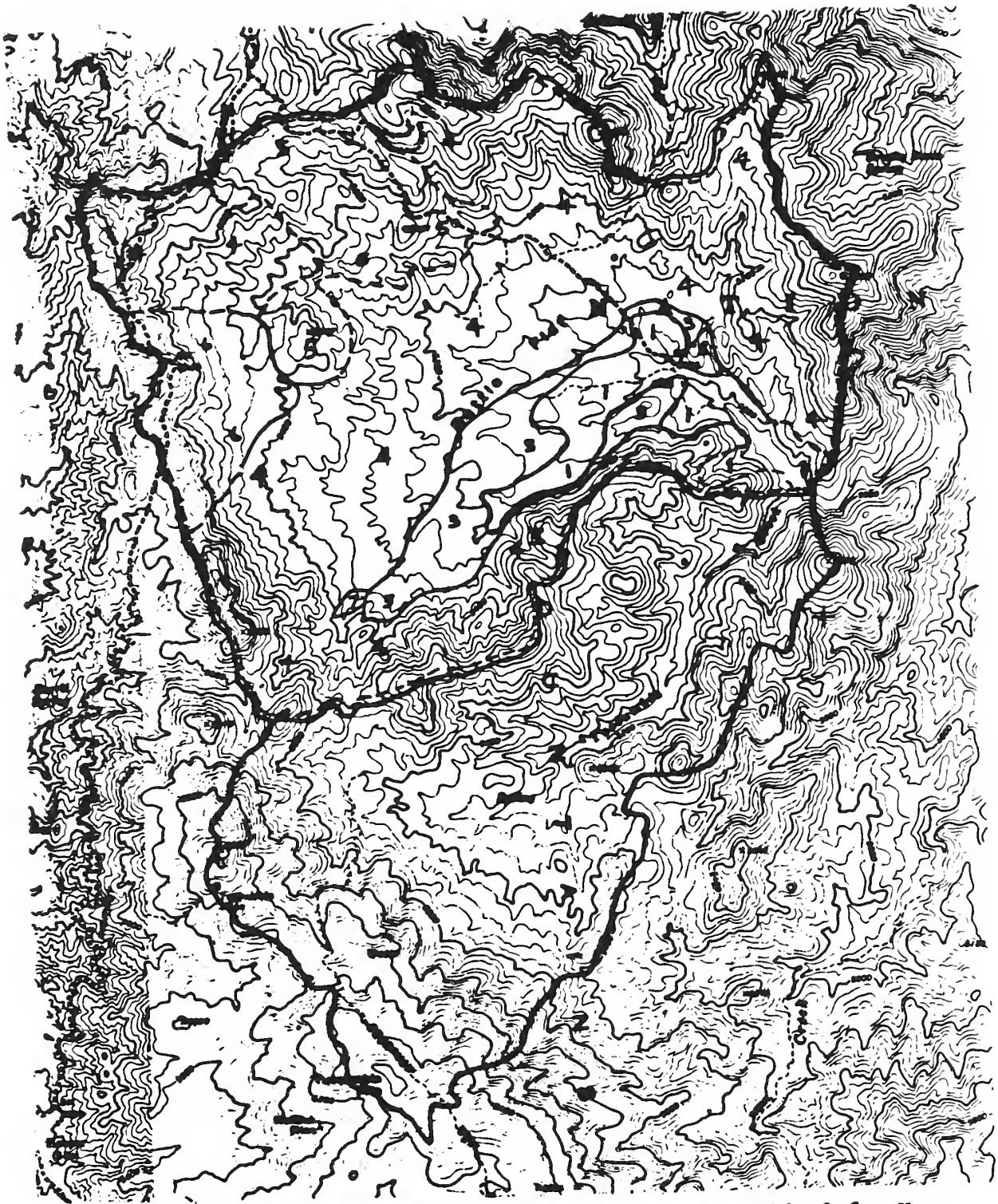

Figure 6. Battle Flat Project Vegetation, see Table 2 for Key

A number of factors in the environmental makeup of Battle Flat contributed to obscuring and disturbing cultural materials. Vegetative cover was, in many areas, too dense to allow inspection of the ground surface. Often, observers were suspended several feet above the ground by an impenetrable mat of brush. In those areas not obscured by brush, such as the pine flat, the ground was often hidden by a thick cover of duff. Vegetation density also prevented accurate triangulation of positions by obscuring the horizon. Finally, the heavy erosion seen in the area served to remove and transport cultural materials while at the same time creating a complex and broken topography which contributed to locational difficulties. Because of these conditions, no claim is made in this report that the survey recovered, located, or identified all cultural resources in the surveyed area.

Historical Background

During the 1860's, the Bradshaw Mountains were the scene of a considerable amount of activity. They were one of the earliest areas to be settled in Central Arizona. Occasionally called the Silver Range, they were named for William D. Bradshaw, who was instrumental in opening the area to mining. Following his entry into the area in 1863, a number of mines and mine towns proceeded to spring up, flourish, and die. Of the dozen or so towns that once existed in the Bradshaw Mining District, only Crown King remains occupied. The Battle Flat Watershed lies between the remains of several of the towns from this period--Goodwin and Bradshaw City. While little is known about Goodwin, other than that the name commemorates the second Arizona Territorial Governor, much is known about Bradshaw City. Founded near the Tiger Mine, the first and richest silver and gold mine in Northern Arizona, the town arose on the trail between the mine and Prescott. That trail is know known as the Senator Highway. Bradshaw City was "founded" in 1871 and supported a Post Office from 1874 to 1884. During its heyday, the town claimed 5,000 residents, a variety of stores, shops, saloons, restaurants, and two hotels (Granger, 1960; Sherman and Sherman, 1969). Nothing above ground remains of the town today. Only a few boulder foundations give any evidence of it. Crown King is another town that arose in this part of the Bradshaws, only a few miles from Bradshaw City. Primarily a mining camp rather than a town in the 1870's, the large quantities of gold produced by the Crowned King Mine enabled a town to develop by the 1880's. Since the mine continued to produce after many others in the area had been exhausted (e.g., the Tiger), Crown King continued to grow after most of the other boom towns had died. By 1897, Crown King supported company stores, several saloons (despite a preference for temperence by the mine owners), boarding houses, hotels, two Chinese restaurants, a feed yard, electricity, and a telephone. The Crowned King Mine

itself was closed by legal problems in 1901, but other small mines that opened up around it kept producing enough that a branch of the Prescott and Eastern Railroad was brought into town in 1904 to transport ore. That year also saw the establishment of a Wells Fargo Office in town. However, by the early 1920's, the town had gone into decline and many of the mines had closed. In 1923, the railroad abandoned the branch and removed the rails. The old rail grade now forms the bed of Forest Development Road 259. The town continues to hang on, but in 1954, the Post Office, established in 1888, was discontinued (Granger, 1960, Sherman and Sherman 1969). Today, the town has much the appearance of an inhabited ghost town, and the only real "industry" supporting it is the Prescott National Forest, Crown King Ranger Station.

Closer to the demonstration area itself, Tuscumbia Mountain and Tuscumbia Creek, which form part of the control area, were named by two miners operating in the area--one from Tuscumbia, Alabama, the other from the Tuscumbia River Valley in Tennessee (Granger, 1960). Battle Flat itself derives its name from an incident which took place there in May of 1864, soon after the initial entry of Anglos into the Bradshaw Mountains. One day, five men--Fred Henry, DeMarion Scott, Stuart Wall, Sam Herron, and Frank Binkley--camped in the basin and were set upon by (they said) 150 Indians, probably Yavapai. The fight lasted about three hours. Henry was wounded, but was able to ride to Wagoner for help, which was refused. He returned to the flat, but by the time he returned, the fight had ended and the Indians had moved on. Binkley reportedly was blinded in one eye and Herron mortally wounded. He died nine days after the fight (Granger 1960).

No settlement of any kind has been recorded historically for Battle Flat, and no evidence indicating any was observed during this survey. However, various impacts of mining in the area were present, in the form of several claim markers and small shafts. As well, there are many old juniper stumps in the area, attesting to the critical former need for sturdy mine timbers.

Ethnographic Background

The Battle Flat Watershed lies within the range of the Northeastern Yavapai as described by Gifford (1936). These Yavapai were said to have occupied the middle and upper portions of the Agua Fria and Verde River drainages in historic times. As such, Battle Flat would have been on or near the "boundary" with the Western Yavapai of the Santa Maria and Hassayampa River drainages. That someone was utilizing this area is shown in the story of the naming of Battle Flat. The Yavapai, in contrast to both the prehistoric Indian and historic

Anglo populations of Central Arizona, were primarily dependent for subsistence on hunting and the gathering of wild plant foods. Agriculture was practiced, but only on a limited and casual part-time basis. The occurrence of agriculturally, useful natural resources was a secondary consideration in the location of Yavapai sites. Because of this hunting and gathering focus, Yavapai habitations were usually only seasonally occupied and the structures (if any) that they built were quickly constructed and ephemeral in nature.

While it is known that the Yavapai occupied or at least utilized the Battle Flat Watershed, no diagnostic physical evidence of their former presence was observed during this survey.

Archeological Background

Prior to this survey, no systematic observation of any part of the Bradshaw Mountains had ever been carried out by archeologists. Because of this, the area has always been described, if mentioned at all, in terms of the archeological manifestations seen nearby. Usually, this description has been made on the basis of seniority. The Bradshaws have usually been described as part of the territory of the earlier described "Puebloan" Prescott Branch, rather than as part of the cultural development which centered on the Agua Fria River, since less has been reported from the Agua Fria (McGregor, 1965). One result of this survey is a determination that the archeological assemblage found in the Bradshaw Mountains, and in much of the area of the Prescott Branch, is actually part of the larger cultural development centered on the Agua Fria River. This development is further seen as an extension of the Hohokam Archeological Tradition into a variety of upland environments north of the Salt River Valley. This subject will be treated somewhat more extensively in a later section.

Prior to the 1950's, archeological research in the Prescott-Agua Fria area was confined to the area north of the Prescott National Forest boundary and concentrated on the Lynx Creek and Humboldt-Dewey areas (Jeter, 1977; Museum of Northern Arizona Site Files). In the 1950's Schroeder (1954) investigated a few ruins in the area of Mayer, outside the Forest boundary. He was the first to recognize the similarity between cultural materials in the Bradshaw area and those of the middle Agua Fria mesa-canyon area. After this, the next investigations in the Bradshaw area came in the middle 1960's with a survey of the Perry Mesa area by the Museum of Northern Arizona (Peter Pilles, personal communication). Interest

in the Agua Fria drainage has grown considerably in the late 1960's and 1970's; however, with excavations in the upper drainage (Weed and Ward, 1970), lower drainage (Weaver, 1974), and a variety of survey and excavation projects in the New River-Bumble Bee-Perry Mesa middle drainage, conducted by the Museum of Northern Arizona (Fish, 1974) and by the Central Arizona Ecotone Project of Southern Illinois University (Gumerman, Weed, and Hanson, 1976). There have been only two archeological studies in areas closer to Battle Flat. In 1960, a minor excavation of a Yavapai cave site on Turkey Creek just inside the Forest boundary was conducted by Arizona State College, now Northern Arizona University (Euler and Dobyns, 1960). The only other professional study in the vicinity was large-scale survey and excavation project in Copper Basin, Thumb Butte Ranger District, Prescott National Forest, conducted by Arizona State University (Jeter, 1977). Both the Turkey Creek study and the Copper Basin Project identified materials similar to those observed in Battle Flat. In addition, the Copper Basin materials appear to represent a transitional assemblage between the Agua Frian material to Battle Flat/Turkey Creek and the more typically "Prescott Branch" materials of the northwestern portion of the Prescott National Forest (Euler, 1962) which in turn has similarities to cultural material in extreme western Arizona which later became recognizable as historic Hualapai.

Finally, a compilation of known cultural resources on the Crown King Ranger District has been made by Neil Dickey of that District. This file records a number of archeological sites in the Bradshaw Mountains, several of which also appear in the Museum of Northern Arizona archeological site file, reported to that institution by local informants. This listing includes several sites of the type called "forts" (e.g., McGregor, 1965; Gumerman, Weed, and Hanson, 1976; Rodgers, 1976), several small to large pueblo-like hilltop habitation structures, a number of surface artifact scatters, and many bedrock metate/petroglyph locations. One of these listed sites is the pueblo and cave on Turkey Creek mentioned above; another is a small plaza pueblo located on a ridgetop near the bottom of the Battle Flat Watershed. Yet another is a large surface artifact scatter/habitation site located on the alluvial floor of Battle Flat (see below). The architectural styles, construction techniques, artifact assemblages, locational patterns, and highly distinctive petroglyph design styles are similar, if not identical, to cultural properties located in the Black/Perry Mesa-New/Agua Fria River-Cave Creek areas on or adjacent to the Tonto National Forest.

The Survey

As directed by the principal investigator, the survey strategy used in the Battle Flat Watershed was to survey that portion of the valley potentially to receive mechanical conversion treatment. This consisted of those areas generally below 20 percent slope, the limiting range for use of bulldozer-mounted rootplow techniques. In addition to this area, those portions of the watershed indicated as being sensitive to the location of cultural properties by a preliminary analysis of site and soil associations were defined and surveyed at the discretion of the project director. The surveyed area is shown in Figure 7. Within this area are several potential weir locations, indicated in Figure 8. Access roads to these locations have not been selected at this time.

The total area surveyed within the Battle Flat Watershed treatment area was approximately 920 acres (1.4 square miles). This amounted to approximately 40 percent of the 2,300 acres of the watershed.

Within the boundaries of this area, some of which were natural (the south and east, generally) and some arbitrary (those in the north and west), the ground surface was covered systematically and intensively by means of adjacent parallel transects. The control area and steeper slopes in general within the treatment area were not observed, though predictions of potential sensitivity to the location of cultural properties in these areas have been developed and are presented below. This analysis indicates a low potential for site location in these areas.

Description of the Resource

A total of 18 archeological sites have been inventoried within the Battle Flat Watershed. Sixteen of these were located by this survey; two had been identified previously by Crown King District personnel. Of these 18 sites, 13 were prehistoric habitations and 5 were prehistoric limited activity areas. A summary description is presented in Table 3. Site density within the surveyed area was 0.0196 sites per acre or 12.9 sites per square mile, a moderate density compared to similar areas known on the Tonto National Forest. In addition to the 18 defined behavioral and artifactual loci designated as sites, there were also four so-called nonsite areas of dispersed artifact scatter. The first was a light scatter surrounding -04 and connecting it with a probable agricultural field to the southwest. The

Figure 7. Battle Flat Project Archeological Survey Area

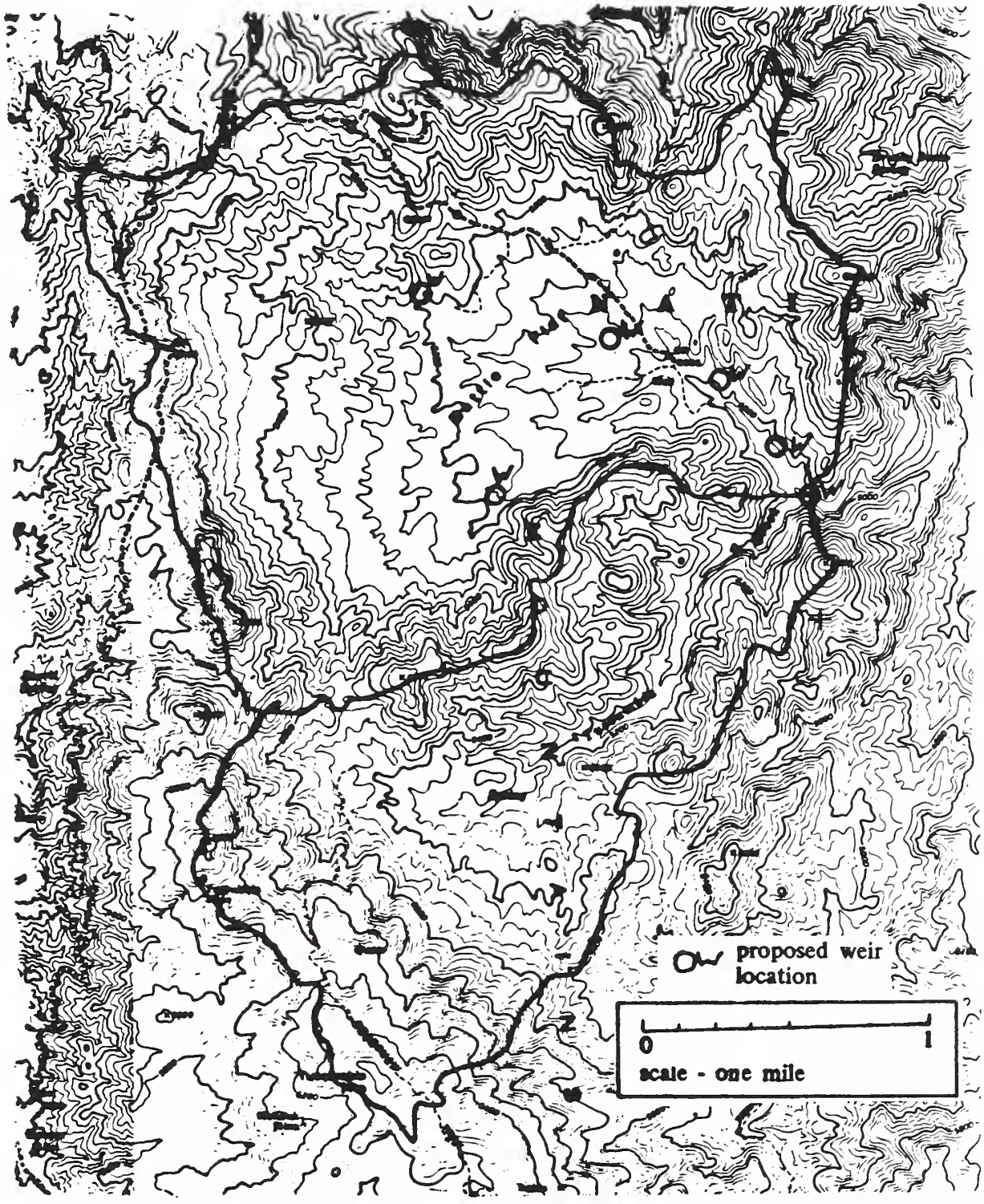

Figure 8. Probable Weir Locations as Indicated Prior to Archeological Survey

Table 3. Site Descriptive Summary - Battle Flat Watershed

AR-03-09-02-04 - Habitation and Limited Activity
-24 - Habitation and Limited Activity
-25 - Habitation
-26 - Habitation
-27 - Habitation
-28 - Limited Activity
-29 - Habitation and Limited Activity
-30 - Limited Activity
-31 - Habitation
-32 - Habitation
-33 - Limited Activity
-34 - Habitation
-35 - Limited Activity
-36 - Habitation
-37 - Habitation
-38 - Limited Activity
-39 - Habitation
-40 - Habitation

second was a light scatter surrounding -25 and containing artifacts of a much earlier period than that represented by -25 or any other site in the area. The third was a light to heavy scatter between -36 and -37 connecting both sites with an agricultural field to the east. The fourth serves to indicate that there is a light scatter of artifactual remains over the whole of the Battle Flat Watershed. This scatter is most concentrated in the eastern and southwestern portions of the survey area.

Finally, the inventory included a badly eroded mescal pit and several locations identifiable as agricultural fields.

Site Descriptions

AR-03-09-02-04 - Previously recorded by Crown King District, this site is a relatively small plaza pueblo with one or two outlying single rooms, situated on a low knob along the crest of a ridge at the edge of the Battle Flat Watershed basin. The pueblo structure, partially excavated recently by person or persons unknown, contains six contiguous rooms arranged in an L-shape with a small attached plaza. The rooms in the structure are large and rectangular, with doorways in the long wall, facing east. Room walls are full masonry, constructed with squared slabs of schist and gneiss. The plaza wall is less substantial, and may have been only of cobble-rubble core construction or a low cobble foundation for a jacal or adobe wall. The artifact scatter associated with the site extends southwest along the ridge crest to the edge of the flat, where it encounters a small prehistoric agricultural field (see below) at the edge of a small drainage. Ceramics on the heavily collected site are predominantly Wingfield Plain, Brown, and Red; Tuzigoot Plain; and Verde Brown and Red. Several sherds of a black-on-white decorated ware (Flagstaff B/W?) were also observed. Lithic materials encountered as artifacts included chalcedony, chert, obsidian, and a distinctive blue-green chert/quartzite. Groundstone materials included rectangular manos and fragments of trough metates, both made of black vesicular basalt.

AR-03-09-02-24 - Also previously reported by Crown King District staff, this very large site involves a variably light to heavy surface artifact scatter on the floor of the watershed basin. The lower portion of the site is at least partially destroyed by the intense gully erosion that has developed there in the last 12 years (Chacon, personal communication). Within this eroded area are what appear to be remnants of a post-and-adobe wall--a line of adobe containing a partially burned juniper post. In the northwestern portion of the site, on an uneroded surface, are indications of a prehistoric agricultural field (see below).

This site, which has not been impacted by vandalism, contained the widest range of pottery types observed in the survey area--Wingfield Plain, Brown, and Red; Tuzigoot Plain; Verde Brown and Red; Tonto (?) Corrugated, and unidentified redware (Tuzigoot?) and an unidentified black-on-white. Lithic material was predominately the chert/quartzite mentioned above with some red and yellow jasper, chert, chalcedony, and obsidian, one piece of which came from the characteristic grey obsidian deposits at Mt. Floyd, northwest of Ashfork, Arizona. Cores, choppers, simple flakes and hammerstones were the common tool types, though one projectile point base and a slate mescal knife were observed, ground stone included a number of whole and fragmentary manos and trough metate fragments, usually of black vesicular basalt.

AR-03-09-02-25 - This site appears to be a small habitation with several possible boulder-founded structures located on a low ridge crest of decomposing granite sub-strate. The site locus contains a considerable amount of artifactual debris, and forms a focal point within a larger area of nonsite artifact scatter. Ceramic types observed were primarily Wingfield Plain and Brown with Tuzigoot Plain, and Verde Brown and Red. Lithic materials included chalcedony and some obsidian, but were primarily, here as elsewhere in Battle Flat, of green chert/quartzite. Groundstone consisted of a basalt hammerstone, a coarse-grained quartzite metate fragment and two fragments from a metate of basalt porphyry. Within the nonsite surface scatter was a possible archaic activity locus, identified by the presence of a Pinto Basin style projectile point basal fragment and a whole, small ovoid or "leaf-shaped" projectile point, both of patinated, fine-grained black basalt. Considering the large scale erosion and redeposition observable in the Flat, the true provenience of these materials is in question.

AR-03-09-02-26 - A small group of habitation structures, this site is located on a small knoll in a secondary watershed at the east side of Battle Flat. It consists of 3 to 4 boulder-outline room remnants and has been partially disturbed by a dirt road which crosses several of them. Ceramics located on site are predominately Wingfield Plain and Brown with some Tuzigoot Plain and Verde Brown and Red. Lithic material is primarily green chert/quartzite, with some chalcedony and several hammerstones of milk quartz from nearby vein outcrops.

AR-03-09-02-27 - This site appears to be a very badly disturbed one-room, boulder-founded structure on the slope below -04. Eroded by gullying and disrupted by tree growth, all that remains of the supposed structure is a few shaped and unshaped building stones, a small area of ashy earth, and a handful of sherds and lithics. It may be that the site is nothing more than a locus of material, washed down from -04. Ceramic types were Wingfield and Verde Plainwares.

AR-03-09-02-28 - A small scatter of surface artifacts, this limited activity site is situated on the crest of a low rocky knoll overlooking Battle Flat. Ceramic types were Wingfield Plain with a few sherds of Verde Brown. Lithic materials were predominately green chert/quartzite cores and flakes, and quartz hammerstones. This array of artifact types suggests that this site may have served as a locus of stone tool manufacture associated with nearby habitations. The site also affords a fair view of the Flat and much of the watershed basin.

AR-03-09-02-29 - This habitation site consists of six to eight boulder-outlined noncontiguous rooms on a narrow rocky ridge crest overlooking Battle Flat. A surface scatter of artifacts continues the site into a work area on a flat below the ridge. This work area is characterized by a high density of artifacts and includes much lithic manufacturing debris (debitage). Ceramic types observed here were Wingfield and Tuzigoot Plain, Verde Brown and Red. Lithic materials were once again primarily of green chert/quartzite with some use of red jasper, chalcedony, and obsidian. Ground stone was represented by mano and metate fragments of vesicular basalt and local schistose gneiss.

AR-03-09-02-30 - Another limited activity site, this one consisted of a very small surface artifact scatter on a narrow ridge above the Flat. Ceramics were all Wingfield Plain, lithic materials all green chert/quartzite. The site also contained three mano fragments--two of local gneissic material, one of vesicular basalt.

AR-03-09-02-31 - A fairly large group of structures, this habitation site contains two separate boulder-founded rooms and a contiguous boulder-outline structure that may contain another two or three (possible noncontemporaneous) rooms. This site is very similar to a site on Ash Creek near the Dugas Road which was excavated in 1972 and 1973 by students of Orme School under the direction of Mark Raab and Rick Effland of Arizona State University. It too contained a multiroom partial masonry cellular structure (not a pueblo) associated with rock-ring single room structures. Unfortunately, no ceramic data is recorded (ASU Archeological Site File). A considerable amount of surface artifactual debris is associated with -31. Ceramic types include Wingfield, Tuzigoot, and Verde Plainwares. Lithics were predominately green chert/quartzite, with some chalcedony and obsidian. Several whole and fragmentary manos of vesicular basalt were also observed.

AR-03-09-02-32 - Another habitation site, this one contains approximately four noncontiguous boulder-founded structures accompanied by Wingfield, Tuzigoot, and Verde ceramics, two manos, and some chipped stone.

AR-03-09-02-33 - A small surface artifact scatter, this site contained only Wingfield ceramics and green chert/quartzite lithics, with the exception of one red jasper biface, elliptical in outline, pointed at both ends, about an inch long (projectile point?). Also observed was a single metate fragment.

AR-03-09-02-34 - This habitation site consisted of a single boulder-outline room on a narrow ridge crest and an accompanying artifact scatter of Wingfield, Tuzigoot, and Verde Plainwares, green chert/quartzite lithics, and two metate fragments, of coarse-grained quartzite and vesicular basalt.

AR-03-09-02-35 - This site was a very small limited activity locus with Wingfiled ceramics, some Verde Brown, green chert/quartzite and chalcedony lithics.

AR-03-09-02-36 - Another small habitation site, this contained a single boulder-outline room on a narrow ridge crest. Ceramics were Wingfield, Tuzigoot, and Verde Plainwares, lithics were green chert/quartzite and grey chert (rare). Ground stone observed at the site included matched mano and metate fragments of vesicular basalt. The metate was apparently of the full trough type, shaped all over.

AR-03-09-02-37 - Another single boulder outline room, this habitation site is situated on the point of a ridge overlooking Battle Flat. Surface artifacts at this site were extremely sparse--only five sherds of Verde Brown and a few flakes of chert/quartzite were observed.

AR-03-09-02-38 - This limited activity site appears to have been an agricultural and food processing area. It contains a deep Lynx loam soil and has a gentle slope below a small catchment basin. It is identified as a field area by numerous small rock/trash piles, a characteristic of Hohokam upland cleared fields (see below). Ceramics and ground stone were abundant on the site; lithics were rare. Pottery included Wingfield, Tuzigoot, and Verde Plainwares. Ground stone included mano and metate fragments of diorite and vesicular basalt, hammerstones of milk quartz (local). The hydrologic value of this area for aboriginal agriculture is indicated somewhat by the recent construction of a trick tank in the northwest corner of the site by the Arizona State Department of Game and Fish.

AR-03-09-02-39 - This probable habitation site appears to consist of one or more boulder-outlined room structures disrupted by road construction and heavily overgrown with manzanita. Located on a high rocky knoll in the western part of the watershed, the site contained abundant ceramics, including Wingfield Plain, Tuzigoot Plain, Verde Brown, Tonto Brown, and Prescott Plain. Lithics were few and primarily of green chert/quartzite. There were also several mano fragments, two of which were of a distinctive red vesicular basalt.

AR-03-09-02-40 - The last site recorded by this survey was a small habitation of one boulder-outlined room, situated on the point of a high ridge in the western part of the watershed basin. Ceramic types observed were Wingfield, Tuzigoot, and Verde Plainwares. Lithic materials were mostly green chert/quartzite, though there were also a slate mescal knife and a dark green chert projectile point, corner notched with reworked edges, inside the large room.

Architecture

For the most part, only domestic habitation architectural forms were observed in the survey area. The one exception would be a small check dam at the edge of the agricultural field below -04.

Two, possibly three, types of domestic architecture are represented at Battle Flat. The first is a more formalized full masonry surface architecture, represented by Battle Flat Ruin (-04). The second type is a less formalized pithouse architecture characterized by subrectangular ("oval") or cellular outlines of rough boulders, the remains of foundations for jacal superstructures. The third type, least known, is represented by the badly eroded pole and adobe wall fragment at -24.

The "formal" architectural pattern of -04 involves the construction of large, contiguous rectangular rooms into a cohesive unit structure often called (though probably not correctly) a pueblo. The Battle Flat "pueblo" was built up of six rooms in a contiguous L-shaped block with a small plaza or courtyard enclosing the open corner of the L. The rooms were approximately 4 meters by 6 meters, with doorways in the centers of long walls. Corners were true squared, or nearly so. Construction was adobe-mortared rubble core masonry utilizing long tabular rock slabs with vertical faces flush-aligned on the room interiors to present a finished, smooth wall surface. Walls appeared to have been masonry to full height for the rooms, but the wall which encloses the plaza is only a low pile of rough cobbles, indicating either a token wall or a foundation for a jacal wall. This pattern is typical of sites in the lower and middle Agua

Fria area. Masonry materials utilized in the "Pueblo" were both local and transported. The coarse granite cobbles used in the plaza wall and as a rubble core between the slab-facing room walls is outcropping on the ridge where the site is located. The tabular gneissic rocks used as facing had to be quarried from exposures in the valley below or elsewhere in the area.

As a result of excavation carried out at this site by "person or persons unknown," some insight into the growth of the structure is available. It appears originally to have consisted of two rooms built back to back in a small block. Later, the doorway in the eastern room was sealed and two rooms added on to the east, forming the long side of the L. After this, two more rooms of apparently less refined masonry (more use of rough cobbles and boulders) were added to the south sides of the first two rooms, completing the L. Finally, the rough plaza enclosing wall was built. The construction of the outlier rooms (see above) cannot be fitted into the sequence, but it is apparent that the entire structure was not built as a unit, but was periodically enlarged over time.

The architectural patterns seen at -04 are found throughout the middle and upper reaches of the Agua Fria drainage, from Lynx Creek to New River, and appear to be part of a general archeological tradition that began in the margins of the Salt River Valley and culminated in the high density occupation of the Perry Mesa-Bloody Basin area. The characteristic architectural patterns of this tradition, all seen more or less in minature at -04 are full, slab-faced rubble core masonry, large rectangular rooms with long-side doorways, unit construction, and appended or incorporated plazas or courtyards (Barnett, 1974; Fish, Moberly, and Pilles, 1975; Gumerman, Weed, and Hanson, 1976; Schroeder, 1954; Prescott NF Archeological Site Inventory; Tonto NF Archeological Site Inventory; Museum of Northern Arizona Archeological Site File; personal observation).

The other major architectural pattern represented in Battle Flat is considerably less complex, but even more widespread. The many small habitation structures scattered singly and in groups across the low ridges of the Flat are what has been termed "oval rock outlines" (Euler, 1962). These structures are found from Cave Creek drainage just north of Phoenix to the Juniper Mountains northwest of Prescott. When excavated, they are seen to be oval to subrectangular pithouses with rough masonry partial walls serving as a foundation for a jacal super-structure (Ayres, 1967; Jeter, 1977; Rodgers, 1976; Ward, 1975; Weaver, 1974). Analysis of the layout, construction, and floor features of these structures indicates an origin in Hohokam architecture of the Sedentary Period (Jeter, 1977; Rodgers, 1976; Ward, 1975).

Agriculture

While little in the way of agricultural architecture was encountered in the survey area, three distinct and one probable prehistoric agricultural fields were located. These fields are representative of a sophisticated upland runoff utilization agricultural technology that, too, has its origins to the south and east. The three fields (-38; part of -24, part of -04) are identified as such on the basis of characteristic surface manipulations known from other upland agricultural sites. This surface manipulation takes the form of land clearing and the piling up of rocks cleared from the surface into small, scattered, low mounds of rock and trash, usually a meter or so across. These rock piles may be randomly placed or may exhibit patterning across the cleared field or around its edges. This pattern of field clearing and rockpiling to utilize local runoff for agriculture has been documented for several areas in Central Arizona (Fish, Moberly, and Pilles, 1975) and is characteristic of the Hohokam assemblages of the lower Verde River (Canouts, 1975) and along Cave Creek drainage (Rodgers, 1974).

Site Classification

As was mentioned above, the 18 prehistoric archeological sites identified by this survey can be broken down into two types: habitation (13 sites) and limited activity (5 sites). This type of classification assumes that the range of activities found in the vicinity of domestic facilities is greater than in areas where there are none. It is primarily a matter of time. It is assumed that more time is spent near home by more family members than in locations away from home. This assumption is based on the generally accepted premise that populations building substantial structures and practicing agriculture are primarily sedentary.

This dichotomy in site types can be broken down further on the basis of specific site characteristics, at least for habitation sites. Without detailed analysis of collections, it can only be assumed from survey data that limited activity sites functioned to procure and/or process subsistence and/or other economic goods. Habitation (architectural) sites, on the other hand, may be classified according to architectural elements such as building type or number of rooms. In this way, the 13 habitation sites can be broken down two ways. The first is a dichotomy between surface masonry structures and rock outline pithouse structures. They may also be classified by size--large and small, on the basis of room number, arbitrarily categorized according to their position relative to the mean number of rooms for the sample. In this case, the 13 sites contain a cumulative 33 rooms, averaging 2.5 rooms per site. This figure is arrived at by utilizing the lower figure in estimated site room counts and by arbitrarily assigning room counts of one to -24 and

Table 4. Habitation Site Size Distribution

		Room No.
AR-03-09-02-04	-	7
-24	-	1
-25	-	1
-26	-	3-4
-27	-	1
-29	-	6 - 8
-31	-	4 - 5
-32	-	4
-34	-	1
-36	-	1
-37	-	1
-39	-	1
-40	-	1

Table 5. Habitation Site Classification

	Large	Small
Masonry	1	0
Pithouse	4	8
TOTALS	5	8

Table 6. Pottery Types - Battle Flat

Local Plainware		Wingfield Plain Wingfield Brown Wingfield Red Tuzigoot Plain Verde Brown Verde Red Prescott Plain (Verde Grey) Unidentified Red (Tuzigoot?)
Imported		
	Decorated	Unidentified Black-on-White (Flagstaff?)
	Plainware	Tonto Brown Tonto (?) Corrugated

-25, where structural remains are obscure, but probably represent a higher number of rooms than was observed. Size distribution of the 13 habitation sites is shown in Table 3. Classification breakdown is presented in Table 4. That such an analysis is indeed arbitrary is demonstrated by the fact that -24, viewed in this way, is classified as a "small" site, while it is, in fact, the largest in area.

Based on this arbitrary classification, and assuming contemporaneity of sites and of architectural types (the latter is more or less documented by Euler, 1962, and by Gumerman, Weed, and Hanson, 1976), it appears that the majority (61.5%) of known Battle Flat habitations were one room, probably single family, pithouses, scattered around the floor of the basin. The remainder of these habitations (38.5%) were multi-room groupings. Only one of these was a single unit structure, and it was markedly different from the rest. If maximum contemporary population is equated with total recorded room count, then 72.7% of the Battle Flat population was living in multi-family unit structures. Thus, while single room habitations outnumber multi-room sites, the bulk of the population (51.5%) was living in multi-room pithouse "villages." Considering the small size of the area, however, the arrangement within the watershed appears to represent a single rancheria-type village with separated kinship habitation units.

While the pithouse structures can be explained as domestic units within a larger village that encompassed the whole of the watershed basin of Battle Flat, the "pueblo" on the ridge cannot be explained in this manner.

An association between masonry hilltop or central sites and less substantial part-masonry and pithouse sites located below and adjacent to fields (see below) has been noted as common in the Cave Creek, New River, and middle Agua Fria areas (Rodgers, 1976; Gumerman Weed, and Hanson, 1976). It has also been observed in the northwest ranges of the Prescott tradition (Euler, 1962). This pattern appears to have developed first in the desert during the same period (900-1100 A.D.) that the early, pithouse-only form of the Prescott tradition takes form and before the Bradshaw Mountains archeological assemblage occurs (see below). If, as the survey data suggests, the two structural types are contemporaneous in Battle Flat, some explanation should be possible to describe the dichotomy. One possibility is that it represents a level differentiated social organization. While there are indices of hierarchy and differentiation applicable to survey data (Plog, 1974; Wood, 1978), these indices deal only with site size distinctions and site economic behaviors (Habitation vs. limited activity) and are not appropriate for the differentiation in both magnitude and character present here. The only way to resolve the problem is excavation and

analysis of relative and absolute quantities of high-status materials from the two site types. However, the consistent association of the two types over a wide area indicates a formal relationship. The special geographic structure of the Battle Flat basin and archeological assemblage makes it desireable as an area where just such an investigation could be carried out.

Description of Artifactual Remains

Prior to any description of the artifactural materials observed during the Battle Flat survey, it must be stated that the following observations reflect field identifications and preliminary analysis of a few apparently diagnostic items collected during the survey. No statistically representative collections were made, no detailed laboratory analyses have yet been performed. Therefore, the observations made here, though based on field and analytical experience, literary research, and some specific analysis, must be regarded only as first approximations of an artifactual inventory of the cultural properties recorded by this survey. They are presented here primarily in response to the current acute lack of information about this area in the professional literature.

Ceramics

A fairly wide range of pottery types was recorded for the survey area. These types are presented in Table 6. The primary type found in Battle Flat is Wingfield Plain, followed by Verde Brown and Tuzigoot Plain. All other types observed were uncommon to rare.

Implications of this assemblage are fairly straight-forward. The Wingfield, Tuzigoot, and Verde plainwares are all common to the upper Agua Fria drainage (Barnett, 1974; Caywood, 1936; Schroeder, 1954; Ward, 1975; Weed and Ward, 1970). The overwhelming predominance of Wingfield, however, is somewhat distinct from inventories at previously reported sites to the north (Barnett, 1974; Ward, 1975), and probably indicate stronger ties to the south, to the middle Agua Fria. The Wingfield sites near Mayer, part of the same cultural manifestation as at Battle Flat (Prescott NF Archeological Site Inventory) were tested by Schroeder (1954) and found to bear strong similarities to later Perry Mesa sites on the middle Agua Fria.

Wingfield Plain, following a long period of confusion, has recently been recognized, generally, as a Hohokam type (Ward, 1975; Weaver, 1974; Weed and Ward, 1970; Wood, in press). It appears to be archetypal and is common to all Hohokam contexts in the uplands of Central Arizona, and is especially dominant along the Agua Fria River, until some time after 1300 A.D. (Rodgers, 1974; Weaver, 1974; Weed and Ward, 1970). Verde Brown is another Hohokam

Plainware, found along the Verde River as early as 800 A.D. (Breternitz, 1960). It too has been characterized as a typical upland Hohokam ceramic (Ward, 1975). The Tuzigoot types present more of a problem. Because they were first described in the Verde Valley, they have been afforded somewhat more distinction than perhaps they deserve. Tuzigoot Plain, a contemporary of Verde Brown, appears in many cases to be simply a variant of the Verde. Tuzigoot Red, which does not actually appear in quantity until after A.D. 1300, seems to be nothing more than a local version of Salt Red, a Hohokam type. Many specimens of Tuzigoot Red are indistinguishable from contemporary varieties of Salt Red from the Salt-Gila Basin. If so, then this is also a Hohokam type. If not, then it will remain classified as a "Sinagua" type from the Verde drainage, locally made.

During the course of the survey, some aspects of behavioral patterning were observed in the form of differential distributions of specific pottery types. It was noted during the recording of sites that while Wingfield ceramics and sometimes Verde Brown were found in association with every site identified in the watershed, Verde Red and Tuzigoot types were not generally associated with limited activity sites. Also, the few decorated types found in the basin were associated only with habitation sites. This patterning is similar to patterns observed in the lower and middle Agua Fria areas (Gumerman, Weed, and Hanson, 1976). It was noted there that limited activity sites with ceramics contained only Wingfield types while habitation sites exhibited a much wider range and variety of types.

Finally, the imported types are of some interest, since they indicate ties to the south and east, to the "Salado" country east of Bloody Basin. The one Black-on-White type (Flagstaff?) is indicative of contacts to the north, with Kayenta Anasasi groups in the vicinity of Flagstaff.

Lithics

Without collections and analysis, few observations can be made concerning the lithic technology of Battle Flat. However, those few potentially contain considerable significance. The primary characteristic of Battle Flat lithics is the nature of raw material utilized for the majority of them. This was a distinctive fine-grained blue-green silicate rock with a granular structure intermediate between fine-grained quartzite and chert and similar to some rhyolites. It appears to occur in chert-like nodules, as it often has a softened yellow cortex. This material was used for the manufacture of choppers, utilized flakes, and some more formalized tools, though these were uncommon. This material was so plentiful as to suggest an immediately local source, though this survey and

detailed geologic maps of the area indicate otherwise (Jaggar and Palache, 1905). Other materials from which flakes were made and utilized were chalcedony and several varieties (red and yellow) of jasper. Although these are available locally (within two miles), none were especially plentiful. Rare lithic materials occasionally encountered were grey and tan cherts, fine grained basalt, and obsidian, one piece of which was the characteristic grey banded variety from Mt. Floyd. A black obsidian is available downstream from the New River Mountains, but is undescribed (Jaggar and Palache, 1905).

Ground stone materials were also fairly standardized. Black vesicular basalt predominates for manos and metates, with some use of red and grey vesicular basalts or andesites, and occasional use of local granite and gneisses. These basalts and andesites, while not available locally, can be found within five miles of the Flat, though the nearest exposure of vesicular basalt suitable for grinding stones appears to be Malpais Hill, some 13 miles SSE of Battle Flat (approximately 25 to 30 miles on foot). (Jaggar and Palache, 1905.) Milk quartz used for hammerstones occurs locally in the Flat in iron-bearing veins.

To summarize lithic raw material procurement for Battle Flat at this point would be futile. Several conflicting patterns are present and seem difficult to reconcile. First, immediately available materials (gneiss, granite, grano-diorite, schist, quartz) were only minimally used, and only for larger ground stone tools (e.g., metates) or casual, opportunistic tools, (e.g., hammerstones). The overwhelming majority of observed ground stone material was imported, often from considerable distances over extremely rugged terrain. This pattern is similar to others seen in excavated small sites in the upper Agua Fria area (Ward, 1975), but in contrast to the single large excavated site in this area, where local materials made up most of the ground stone inventory (Barnett, 1974). Chipped stone material also presents several paradoxes. While other silicates are available quite nearby, none were as extensively utilized as the green chert/quartzite. No source for this material is recorded (Jaggar and Palache, 1905), nor are Crown King District personnel aware of one (Neil Dickey, personal communication). If it is imported, then it was brought in at amazing quantities. A final paradox exists in the manufacture of projectile points found in the survey area. A dozen points were located during this survey, at least three of which are Archaic (see below). Of these, only one, of red jasper, was made of any material locally available. All the rest are of materials which had to be imported over some distance (chert, flint, agate, fine-grained basalt, grey quartzite, and obsidian). Among these is a large corner-notched triangular point of tan chert, in a style similar to reported Basketmaker atlatl dart

points. It may also be Archaic. No further interpretation is able to be offered at this time.

Chipped stone technology observed in the survey area was similar to that found in much of central and southern Arizona. Large and small polyhedral cores were used to produce simple, nonformalized flakes which were then used, commonly without further modification. Core tools consisted primarily of crude choppers. Projectile points considered contemporary with the ceramic occupation are primarily bifacially retouched, triangular with flat or convex bases, leaf-shaped, or stemmed and corner-notched. One stemmed point from -40 was apparently reworked after manufacture to produce a drill.

The styles represented by the projectile points are similar to those found at Fitzmaurice Ruin, a large contemporary and ceramically related site 19 miles due north of Battle Flat on Lynx Creek (Barnett, 1974). These points have strong resemblances to both the Coconino area to the northwest and to Hohokam styles found further south, with the Fitzmaurice collection appearing strongly related to Hohokam (McGregor, 1965). The use of reworked stemmed, corner-notched points as drills is also documented from Fitzmaurice (Barnett, 1974). In all, the chipped stone technology of Battle Flat appears to be strongly derived from Hohokam sources to the south.

Ground stone technology was also characteristic of central and southern Arizona. Metates were predominately full trough, flat bottomed, and often shaped all over. Manos were thin, well shaped, rectangular and in many cases, fitted precisely to the contours of specific metates. Hammerstones were common, and typically were simple, rough spheroids with battered edges.

Archaic Manifestation

During the survey, three small projectile points or fragments were found which appear to represent an Archaic period utilization of the Battle Flat Watershed. One fragment was the base of a pinto basin-style point of fine-grained black basalt. The other fragment was the basal portion of a Desert Archaic (?) style (McGuire, 1977) point of black obsidian. The third was a small whole point, ovoid in shape, bifacially worked, made of fine grained black basalt. The two basalt points are heavily patinated, the obsidian fragment heavily hydrated. While the material and shape of the ovoid point are characteristic of the Archaic, it is not diagnostic of any particular area or time (Marvin Jeter, personal communication). The Pinto Basin and Desert Archaic (?) points, on the other hand, indicate some use of the area during the period 2,000 B.C. to 1 A.D., (McGuire, 1977) though dating on this basis must be considered to be almost a guess.

The presence of Pinto Basin and Desert Archaic materials here indicates that Battle Flat may have once supported a pre-ceramic, pre-agricultural hunting and gathering population, or that it provided seasonal or occasional resources which were utilized by such a population.

Archaic sites in this part of Central Arizona, while no longer considered to be rare, as once thought, are not commonly reported. However, enough information is currently available to provide at least an overview of archaic patterns in the area. It has been reported (Fish, Moberly, and Pilles, 1975) that a considerable amount of artifactual material relating to Pinto Basin assemblages is found in the vicinity of Prescott. This material, representing an archeological complex centered in the Mohave Desert of southern California, appears to date to the period 2000 B.C. to 1000 B.C. (McGuire, 1977). It has been found in a variety of locations in the uplands of Central Arizona (McGuire, 1977; Bruce Huckell, Arizona State Museum, personal communication). Also, reported from this area are a number of Cochise Desert Archaic sites located in the middle Agua Fria and upper Verde River areas (Fish, Moberly, and Pilles; 1975; Gumerman, Weed, and Hanson, 1976). This preceramic archeological complex, dating from 2000 B.C. to 1 A.D., is centered in the upland deserts and grasslands of southern Arizona, but does not seem out of place on the Agua Fria and Verde Rivers. The situation as currently reported, then, appears to involve a Pinto Basin occupation of the Prescott and middle Verde areas overlapping with a Desert Archaic occupation of the Agua Fria and upper Verde areas. It may be that Battle Flat represents one small area of that overlap. Little more can be said on the basis of the material on hand.

Analyses and Conclusions

Chronology

The above discussion indicates that the earliest occupation or use of the Battle Flat Watershed was during the Archaic Period, sometime between 2,000 B.C. and 1 A.D. Following this, the watershed appears to have been unutilized for a long period, until ca. 1100 A.D. At about this time, a small population, represented by the sites recorded during this survey, appears to have settled in Battle Flat. This occupation could have carried on to as late as 1300 A.D., after which the basin was once again abandoned, to be used only occasionally by historic Yavapai and Anglos.

The cultural properties recorded here are dated to the period 1100-1300 A.D., primarily on the basis of ceramics and partially on the basis of architectural features. The beginning and end

dates are derived from the presence of Verde Red ceramics, a type dated as occuring from 1100 to 1300 A.D. (Breternitz, 1966; Ward, 1975). The beginning date is further substantiated by the presence of Tuzigoot Plain, which is dated to the period 1150-1400 (Barnett, 1974), and the end date is supported by the high percentage of Wingfield ceramics, which appear to drop off in use drastically in the middle and upper Agua Fria areas following 1300 A.D. (Gumerman, Weed, and Hanson, 1976; Weaver, personal communication; Arizona State University Archeological Site File). Verde Brown is also said to have an end-date of 1300 A.D. (Barnett, 1974). Other ceramic support for these dates is found in the presence of Tonto Brown, dated to the period 1085-1400 (Breternitz, 1966), and of Flagstaff (?) Black-on-white, dated to between 1075 and 1275 A.D. (Breternitz, 1966).

Additional support for dating the Battle Flat materials to the 1100-1300 A.D. period comes from architectural and artifactual similarities of these properties to others on and near the Forest. The two most similar sites related to the Battle Flat Hilltop Ruin are the Golden Turkey Ruin and Fitzmaurice Ruin. Downstream on Turkey Creek, Golden Turkey Ruin has been dated to "A.D. 1200, plus or minus 100 years" by Euler (letter to Crown King District Ranger, 1975, on file). Fitzmaurice has been dated to the period 1140-1300 A.D. (Barnett, 1974).

Cultural Affiliation

It would appear from the discussions of architectural and artifactual patterns and materials presented above that the Battle Flat archeological assemblage is a manifestation of the larger Hohokam development, some discussion of the relationships between Battle Flat and the larger Hohokam patterns is in order.

The artifactual assemblage recorded in Battle Flat has strong similarities to Hohokam assemblages from the lower and middle Agua Fria. As noted above, the major ceramic types of Battle Flat-Wingfield and Verde are recognized as Hohokam. As well, the chipped and ground stone assemblage is typical of Hohokam assemblages from both the Salt-Gila River Valley core area and the upland desert periphery. Architectural forms present in Battle Flat are also related to Hohokam patterns on the lower Agua Fria, and appear to be derived from structures which first made their appearance in the Cave Creek-New River-Lower Agua Fria area in early Sacaton Phase (900-1100 A.D.) (Rodgers, 1974; 1976; Weaver, 1974; Arizona State University Archeological Site File). There are indications that rock-outline pithouses were in use by Hohokam populations in this area as early as 700 or 800 A.D., and the slab masonry described above for Battle Flat Ruin was characteristic of the whole Agua Fria through Bloody

Basin to Verde River area (Chenhall, 1967; Holliday, 1974; Rodgers, 1976; Gumerman, Weed, and Hanson, 1976; Fish, Moberley, and Pilles, 1975; Arizona State University Archeological Site file; Tonto National Forest Archeological Site Inventory), and is especially similar to construction techniques from the 1100-1300 A.D. period in this region (S. Bruder, Arizona State University, personal communication, C-14 dates from AR-03-12-01-51). Since this material appears to be Hohokam, the Battle Flat properties are again strongly indicated to be at least Hohokam derived.

The classification of these materials as Hohokam is not without controversy. For many years, this area was totally unknown archeologically and once it began to arouse a professional interest, it was generally studied by archeologists oriented to the pueblo traditions of the north and in an information vacuum concerning the character of Classic period Hohokam (A.D. 1100-1450). Hopefully, as more work is done in Central Arizona, a better understanding of the patterns of development, expansion, and adaptation operating there and a larger recognition of the significance of Hohokam expansion and influence will develop. In the past, this material would probably have been classified by most Southwestern archeologists as "Prescott Branch," a supposedly puebloid tradition in west-central Arizona. It has been seen in recent years, though, that the Prescott tradition is more likely a marginal Hohokam phenomenon, probably involving a veneer of Hohokam behavioral and artifactual patterns on an indigenous Cerbat-Hualapai-Yavapai population as that native population was acculturated to the expanding Hohokam tradition for a brief period (Jeter, 1977; Ward, 1975).

Whatever the origins of the "Prescott Tradition" are, that material is similar but not identical to the Battle Flat assemblage, which can be taken to represent much if not all of the cultural properties of the Prescott NF south of the City of Prescott, based on the site inventories consulted. While similar architectural forms were adopted by the "Prescott" peoples north and west of Prescott, those assemblages retained an indigenous ceramic tradition. This ceramic tradition appears to be related to that of the Hohokam in terms of manufacturing techniques and vessel form, but has its origins to the west. The Bradshaw-Upper Agua Fria assemblage is directly derived from lower Agua Fria Hohokam sources and appears to have involved at least two actual migrations of Lower Agua Fria people. The first (Weed and Ward, 1970) brought a Hohokam colony into the Humboldt area around 700 A.D. which developed into a large local population centered on the river valley (Museum of Northern Arizona Archeological Site file). The second brought lower and middle Agua Frians into the higher elevations of the Bradshaw Mountains at about 1100 A.D. or shortly thereafter. The colonies established by these two incursions developed in contact with both the native

population and the Kayenta Anasazi to the northeast, producing the two variations in the Prescott tradition known as the Prescott Phase (1000-1125 A.D.) and the Chino Phase (1125-1275 or 1300 A.D.). The dates for these phases do not agree with traditional views, but are revised here in accordance with the latest information regarding tree-ring dates and ceramics from Prescott Branch sites and in correlation with developmental patterns in the Verde River and lower Agua Fria drainages.

Agricultural and Other Economic Patterns

The first assumption to be made and expressed in this analysis is that the Battle Flat population was in some significant way dependent on agriculture to supply a need in the cultural/economic system it maintained.

The second is that this system was also dependent on the hunting and gathering of wild food and other resources. These assumptions are based on the long-standing view, presented above, that agriculture and sedentism are strongly related and they are supported by the more or less permanent nature of the architectural remains. The validity of these assumptions for the Battle Flat assemblage is supported by the presence of recognizeable agricultural features and of tools and features specific to hunting and gathering such as projectile points, mescal pits, and mescal knives.

While little further can be said about the local gathering technology, more can be observed about prehistoric agricultural practices. It has been noted that the agricultural forms present here are based on a runoff or "dry farming" technology. At least one other agricultural pattern was probably operating here as well. This would have been "floodplain" farming--the use of drainage bottoms and low terraces for cropping. While physical evidence of such patterns is extremely rare, other contingencies are available; most specifically, the high density of artifacts in certain areas near what would have been suitable floodplain in the past, before entrenchment and gullying. Most important in identifying these bottoms as agricultural, though, is the importance they appear to have for the location of habitation sites.

Settlement Pattern Analysis

It has been demonstrated several times in the southwest that for particular prehistoric populations, assumed to have had an agriculture dependent mixed subsistence economy, there are particular sets of environmental parameters which appear to have directed the location of settlements (Wood, in Plog 1978, 1978a, in press). Foremost among environmental variables are soil, water, vegetation, and topography. The first three determine both quantity and quality of subsistence resources, the last determines both quantity and distribution of the other resources and the resources,and the resources and the availability of building sites.

Prior to the initiation of the heavy chaparral cover in the watershed, it probably supported an open grassland bottom with pine-oak-juniper woodland overstory on the flat and occasional mottes of chaparral on the rocky hills and ridges to the west (USDA-FS 1975). Within this type of environment, the watershed would have provided a number of high quality subsistence resources--water, acorns, juniper berries, grass seeds, mescal, manzanita berries, and game. Also, the basin is small enough that, were there variations in the prehistoric distribution of these resources, travel time between resource zones in the basin would have had minimal effect on utilization. Therefore, vegetation and water distributions would have had minimal effects on the location of sites within the basin. Topography, however, is not so freely distributed.

Without exception, the sites recorded in Battle Flat are found in locations of relative relief and rapid drainage--qualities to be appreciated when living in a pithouse, whether it was lined with rocks or not. However, this statement applies only to the current land surface configuration. It may well be that prior to gullying, such sites as -24 and -25 were located on a depositional feature at the bottom of the basin. The patterns of soil development would tend to indicate that this is the case. However, the major channels south of -24 and -25, along the margin of the Flat, may have been developed enough during the time of occupation to have provided sufficient drainage for habitation and agriculture. Another aspect of topographic influence on site placement is exposure. All those sites recorded in Battle Flat have a southerly exposure, habitation and limited activity sites alike. As a sidelight, the severity of winters in the central Bradshaws would favor a southern exposure. This would also tend to indicate a year-round occupation, since summer temperatures are mild and would not necessitate so standardized a placement pattern. However, topographic necessities are not limiting for site placement in Battle Flat. Topography in the basin consists primarily of east-west trending ridges and south trending slopes, so that a southern exposure is available almost anywhere. Thus, three of the four environmental variables seen as critical to site location are not limiting in the Battle Flat watershed. In particular combinations or associations, they may be limiting on a Regional or other larger area scale. However, research in other areas (Plog, 1976; Wood, 1978a; Wood, in Plog, 1978) indicates that soil type is the primary environmental locational criterion in Central Arizona.

The importance of soil as a determining factor in site location depends on the assumption, made above, that the populations in question were dependent on agriculture for some element of their cultural/social/economic system. Taking this as a basis for analysis,

the first probelm in assessing the association between site location and soil type is the definition of what makes an arable soil, one that is useful for agriculture.

The characteristics which will be used here to define arable land are those established by the U.S. Department of Agriculture (Yearbook of Agriculture, 1957). These characteristics are: a fine-grained loam texture with larger clastic inclusions (sand or gravel), at least partially derived from allumium; relatively deep; relatively high field capacity; relatively high percentage of organic matter; pH of between 6.0 and 8.0; a slope of less than 5 degrees where no contouring structures are present; and an adequate water supply. A comparison of soil types described for Western Yavapai County (Wendt, et al., 1976) with these criteria indicates that the following soils best fit the definition of arability: Lynx loam, Cordes sandy loam, Gila loam, and "sandy and gravelly alluvial land." Of these, only Lynx loam occurs in any frequency near Battle Flat (Figure 6). It is found in some quantity in Battle Flat itself, in Pine Flat, and along Turkey Creek to the north. A small parcel of Cordes sandy loam is also found near Turkey Creek at Goodwin.

As shown in Figures 6 and 7, the floor of Battle Flat basin is made up of a large parcel of Lynx loam, bordered by a mixed association of Moano soils (poor agriculturally-rocky and shallow) on the ridges and Lynx loam in the bottoms. This observation, illustrated in Figure 5, is the result of combining mapped descriptions of the area with on-the-ground observations recorded during the course of the archeological survey. In summary, Lynx loam is generally a deep, well-drained soil developing in recent alluvium over weathered granite, schist, basalt, sandstone, or limestone parent rock. It is usually found on floodplains, fans, and in swales, with slopes of less than 5 percent. Supporting native grass cover, Lynx topsoil is greyish--brown loam over a deep darker brown clay loam, and is stratified with thin layers of gravel. Permeability is moderately slow, available water capacity is high, and effective rooting depth more than 5 feet. These characteristics conform to the arability criteria listed above. In contrast, Moano soils are thin and rocky, with moderate permeability, low available water capacity and an effective rooting depth of only 20 inches (Wendt, et al., 1976).

While cultural properties and arable soils in Battle Flat are closely associated, it may be that the small size of the basin again obscures the limiting effects of soil distribution. However, these figures show that sites and areas identified as agricultural fields in the basin are located only in those areas containing Lynx loam. This does not demonstrate that site location is determined by soil distribution, but it does indicate that Lynx loam was probably utilized as an agricultural resource in this locality.

In an attempt to demonstrate an association between site locations and soil distribution, an analysis was made of settlement patterning for sites in the vicinity of the Crown King Ranger District. This analysis makes use of site locational information contained in the Crown King District file, the Museum of Northern Arizona Archeological Site File, and the Arizona State University Archeological Site File, and covers the Bradshaw Mountains and vicinity, delineated in Figure 9.

Within the study area, the four soils listed above (Lynx, Cordes, Gila, and "sandy/gravelly alluvium") were determined to be the most arable soil types, with Lynx loam as both best arable and most common of the four. All types found within the study area were evaluated by comparison to the listed criteria of arability and by evaluations of each soil's potential for range herbage production and wildlife forage production (Wendt, et al., 1976), taken as indicators of potential crop productivity. On this basis soils in the area were classed as good, fair, and marginal for agricultural utilization.

Table 7. Agricultural Soil Associations For Sites Inventoried In The Bradshaw Mountains Region

Soil Type	Site Type	
	Habitation	Limited Activity
Agricultural		
Lynx	23 (76.7%)	3 (17.6%)
Cordes	1 (3.3%)	5 (29.4%)
Gila	2 (6.7%)	3 (17.6%)
S.A.	3 (10%)	0 (0.0%)
Non-Agricultural	1 (3.3%)	6 (35.3%)
	30 (100%)	17 (99.9%)

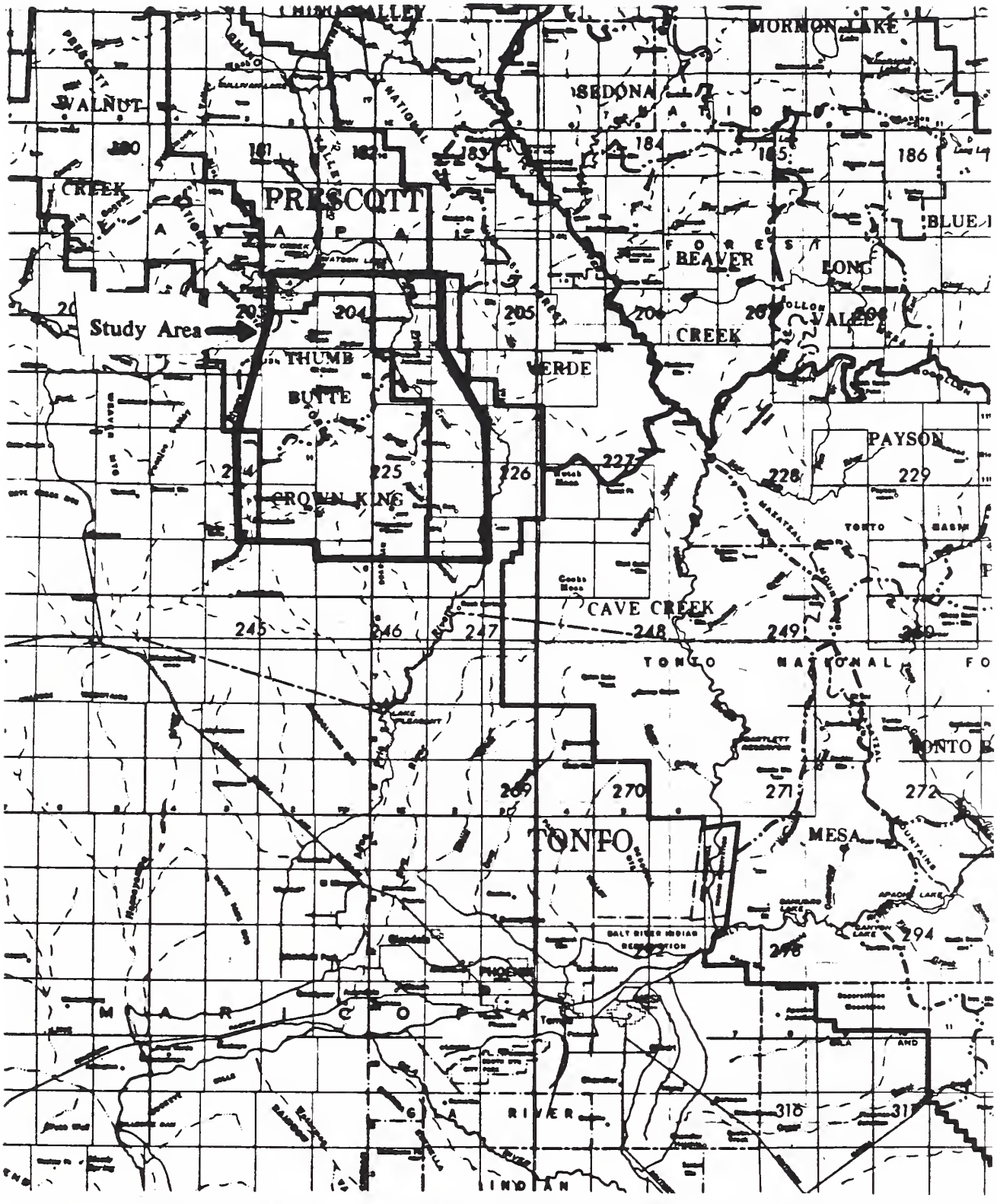

Figure 9. Bradshaw Mountain Site-Soil Distribution Study Area

Forty-eight sites were utilized in this analysis of the study area, not counting sites recorded by this survey. Only those sites which were readily identifiable as either habitation or limited activity are included in this total. A third category, "forts," was differentiated from the habitation category. Twenty-six of the 48 sites are habitation, 17 are limited activity, and 5 fall into the category of "fort." This inventory does not constitute a statistically valid sample of the study area, but because of the variety of types of surveys involved, the range of types of environment described, and the sheer size of the area, the inventory can be considered to be casually random and, therefore, valid at a general level. However, the area must be considered to contain many more sites than are presently inventoried.

Eleven of the 17 limited activity sites from the study area were located in close proximity (on or within 1 mile) of a soil type defined in this report as suitable and productive for agriculture. That 64.7 percent of the limited activity sites were associated with arable soils indicates that agricultural resources were important but not critical to the behaviors represented by these sites.

Twenty-six of the 27 habitation sites, or 96.3 percent, were associated with agriculturally suitable and productive soil types. The one misfit was associated with a soil type only marginally productive for agriculture, but was located above an active stream floodplain situation. Twenty-three of the habitations recorded in the study area (85.2 percent) were located on or near Lynx loam. Three were associated with sandy alluvium (11.1 percent), two (7.4 percent) with Gila loam, and one with Cordes sandy loam (3.7 percent). These figures represent primary associations, so that the totals are more than 100 percent. Several sites had multiple potential associations. Five of the 11 limited activity sites which were located in conjunction with agricultural soils were associated with Cordes sandy loam (45.5 percent), three with Gila loam (27.3 percent), and three with Lynx loam (27.3 percent). This indicates, perhaps, that if the function of these limited activity sites in the system was agricultural, that it was of a different nature and had different requirements compared to the agriculture associated with habitation sites. The results of this analysis are summarized in Table 7.

While this analysis does not utilize a statistically valid sample, it indicates that prehistoric archeological sites in general and habitation sites in particular tend to be located in close proximity to agriculturally useful soil types in the study area. Of these types, one especially is so associated--Lynx loam. It is followed in popularity and available area by Cordes sandy loam, Gila loam, and "sandy alluvium," further supporting the soil-dependence model. These soils appear to have had strong influences on the location of prehistoric populations in the Bradshaw Mountains Region. It is expected, therefore, that wherever these soil

types are found, site densities will be high. Observation of present land-use patterns in the area in terms of the location of modern and historic farms, supports this association. Likewise, this analysis supports an earlier analysis of settlement patterns in the Prescott area (Jeter, 1977) and supports the findings of the Battle Flat archeological survey. However, though this study supports previous determinations of the systemic relationship between site location and soil type, it may not apply in its specifics outside the study area. Observation of Prescott tradition sites in the vicinity of Camp Wood, approximately 30 miles northwest of Prescott, indicates that different locational/economic patterns may have been operating there. A series of small habitations are located there in association only with Barkerville and Mirabal soils. Barkerville soils are considered to be completely nonarable, since soil depth ranges from exposed bedrock to only 5 inches, with outcrop making up approximately 40 percent of the surface, which has an average slope of 50 percent. Mirabal soils are considered to be marginal to nonproductive for agriculture. These soils are shallow (up to 14 inches) over bedrock, with low available water capacity, and an effective rooting depth of only 20 inches. Also, slopes are generally steep, from 5 to 60 percent. This being the case, the artifactual and organizational distinctions which can be made between sites of the western Prescott tradition area and the Bradshaw-Agua Fria area may reflect differences in subsistence and other economic behaviors. If so, this supports the contention, presented above, that the Bradshaw-Agua Fria archeological assemblage is different from what is found in the area north and west of Prescott.

Patterns of Organization

The final category of site type recorded for the study area is that of "hilltop forts." These "forts" are found located, generally, on limited-access isolated hilltops and rock outcrops. They are known from the small mountain ranges just north of Phoenix to the Juniper Mountains, northwest of Camp Wood. They have not yet been distinctly identified as to their function, even as to whether they are habitations or limited activity loci, though a variety of activities have been ascribed to them. Most commonly suggested functions involve defense and communication (signaling). Nor are they adequately described by archeologists working with them, since in many cases hilltop habitations, such as that in Battle Flat, are lumped together with forts, making definition difficult (e.g., Gumerman, Weed, and Hanson, 1976). For the purposes of this analysis, then, "forts" are defined as masonry-walled enclosures located on limited-access isolated peaks usually on or incorporating rock outcrop, with few to no room structures (those internal structures which may be present

not expressing "normal" room configuration), and containing few to no artifacts. This definition follows that of Holliday (1974) and is derived from an analysis of site records for the study area.

Of the five "forts" recorded in the study area, only one was located in association with an agricultural soil type, a small parcel of Lynx loam several miles away. This lack of association would indicate, by comparison to associational patterns presented above, that "fort"-type sites were functionally distinct from both habitation and the majority of limited activity sites. Coupled with their locational preferences, not shared with any other site type, this would place them in a category of special use sites, and indicates that their function was not in the category of subsistence/economic or other environmentally determined activities. No evidence from this analysis nor is any other interpretation offered. The analysis serves only to demonstrate that regional patterns of site/soil association suggest different functions for "forts", hilltop pueblos, and rock ring pithouses. Throughout the study area and the middle and lower Agua Fria drainages, these three site types are found in association, apparently as components of a functional whole. Hilltop pueblos overlook lowland pithouses or boulder-masonry unit structures and are themselves overlooked by forts. Variations on this arrangement are also found in the Sierra Prieta and Camp Wood areas, though in these areas the pattern often leaves out the hilltop pueblo component (Jeter, 1977; personal observation). They are present (e.g. Euler, 1960), but are less common than in the south, and less regularly associated with other site types.

This pattern of association and organization apparently originated in the Lower Agua Fria - Cave Creek - New River area, after 900 A.D. (Rodgers, 1976) and does not appear to have been introduced into the northwest until sometime later. The only northern fort/pithouse association provided with a date is from the Sierra Prieta Mountains (Jeter, 1977). A "hilltop enclosure" there was apparently built after 1075 A.D. Another association of fort, pueblo, and pithouses from Yolo Ranch, northwest of Prescott, appears to date to after 1100 A.D. (Euler, 1962). Though the present evidence is weak, it appears to correlate with indications of a major population movement out of the lower river valleys and into the Prescott area highlands in the late 1000's and early 1100's (Gumerman, Weed, and Hanson, 1976; Ward, 1975; Arizona State University Archeological Site Files).

Culture History and Environmental Patterning

The statement just made is based on analysis of dates of occupation for sites throughout the study area and adjacent portions of the Agua Fria drainage, as well as on developmental sequences of ceramics and architecture in these areas. This analysis indicates that these areas and populations, including Battle Flat and its small

community, were participants in an environmentally sensitive technological/social/locational adaptation which was widespread in Central Arizona. Part of this adaptation involved the migration of whole groups from lower to higher elevations (headward migration) in times of drought or rainfall patterning induced water stress and floodplain degradation (channel entrenchment) (Glen Rice, Arizona State University, personal communication; Wood, 1978a; in Plog 1978; in press; Wood and McAllister, eds., 1976).

The period 1070 to 1300 A.D. was, in many mountainous parts of the Southwest, one of lowered effective moisture and channel entrenchment (gullying) as a result of a markedly summer seasonal rainfall pattern and several prolonged droughts, the most severe of which came in 1075-1125 A.D. and 1276-1300 A.D. (Hack, 1942; Hevly, 1964; Martin and Plog, 1973; Martin, 1963; Robinson and Dean, 1969; Schoenwetter, 1970; Schoenwetter and Dittert, 1968). During this period, conditions for agriculture worsened at lower elevations but improved at higher elevations. There streamflow was more apt to be permanent, and floodplains less prone to gullying, but growing seasons during times of biseasonal or winter dominant rainfall were too short. Because of this change in environmental quality, a number of populations in the southwest abandoned lowland settings and migrated to higher elevations. After this period of lowered effective moisture came a period of increased effective moisture and shortened growing seasons, which forced people back down out of the highlands into the lowlands again (Schoenwetter and Dittert, 1968: Wood, in Plog, 1978). There are strong indications in palynological studies and settlement patterning that these conditions and situations were also present in the desert lowlands of Central Arizona, including the Agua Fria River Drainage (Smith, 1976; Weaver, 1972; Wood, in press).

The culture history of the Agua Fria drainage which follows is the result of a compilation and analysis of recorded site inventories from Arizona State University, the Museum of Northern Arizona, and the Tonto and Prescott National Forests. As indicated by these inventories, the initial occupation of the Agua Fria drainage involved utilization or habitation by various Chircahua and San Pedro Cochise populations in the lower drainage during the Archaic period. These Desert Culture groups seem to have overlapped in this utilization/occupation with Pinto Basin groups in the upper drainage. Both groups probably exploited this environment by means of a generalized hunting and gathering type of economy (Fish, Moberley, and Pilles, 1975; Gumerman, Weed, and Hanson, 1976; Arizona State University Archeological Site File).

The next utilization of this area was by late Pioneer Period (500-600 A.D.) or early Colonial Period (600-900 A.D.) Hohokam populations. Colonies from the Salt-Gila basin were established as small to large rancheria type villages in the Cave Creek drainage, and on both the upper and lower portions of the Agua Fria River. By A.D. 700, large populations were in place in all these areas, practicing agriculture with a sophisticated mixed canal and upland dry-farming technology (Rodgers, 1976; Weed and Ward, 1970; Weaver, 1974; Arizona State University Archeological Site File). Shortly after A.D. 900, during the Sedentary Period, masonry architecture was introduced in the form of "rock ring" pithouses and massive masonry hilltop enclosures (forts). Also during this period, small populations began utilizing the upland mesa-canyon grassland environment of the middle Agua Fria drainage in the vicinity of Perry Mesa. In addition, the New River drainage appears to have been occupied, adopting the fort-pueblo-pithouse settlement pattern which apparently originated there or nearby in the Cave Creek area (Fish, Moberley, and Pilles, 1975; Rodgers, 1976; Weaver, 1974; Arizona State University Archeological Site File: Tonto National Forest Archeological Site Inventory). Part of this period of Hohokam expansion into upland ecological zones appears to have involved large scale and significant contacts with an indigenous, culturally related population in the area north and west of Prescott. This contact produced an overlay of certain Hohokam behaviors on the native population by acculturation, including the use of rock ring pithouses and surface masonry, producing the so-called Prescott Phase.

Following this period of steady growth and expansion, the episode of climatic deterioration described above helped to produce a number of changes in settlement patterning and organization (Rodgers, 1976; Weaver, 1974). This reorganization involved an abandonment of the middle Agua Fria and a concentration of population into fewer, larger, more complex communities on the lower Agua Fria. On the Upper Agua Fria, this reorganization appears to have involved the utilization of different environmental zones rather than population concentration, with groups moving out of the Dewey-Humboldt floodplain and into the foothills and mountains. The reorganization appears to have begun as early as 1050 A.D. in the lower elevations and was heaviest following 1100 A.D., perhaps continuing as late as 1150 A.D. in the upper drainage (Fish, Moberly, and Pilles, 1975; Gumerman, Weed, and Hanson, 1976; Rodgers, 1976; Weaver, 1974; Arizona State University Archeological Site File; Museum of Northern Arizona Site File; Tonto National Forest Archeological Site Inventory). A major portion of this reorganization, probably tied to the population decrease in the middle Agua Fria, appears to have been the move to higher elevations represented by the Battle Flat

survey and the Archeological Site Inventory of the Crown King Ranger District. This second and more sudden movement into the uplands appears to have initiated the development of the Chino Phase of the Prescott Branch. Through most of the 100's and 1200's, this phase was characterized by the fort-pueblo-pithouse complex and by considerable interaction with southern Hohokam populations (Jeter, 1977; Ward, 1970). Other developments during this period involved an expansion of these patterns to the east, into the Bloody Basin-Camp Creek-Verde River area (Tonto National Forest Archeological Site Inventory). During this period, considerable change in local patterns of group interaction appear to have taken place, evidenced by, among other things, the demise of much of the short-lived Chino Phase between 1275 and 1300 A.D. Also, for a brief period around 1200 A.D., a small population returned to the middle Agua Fria-Perry Mesa area (Gumerman, Weed, and Hanson, 1976). Many of these variations may reflect brief climatic oscillations during the period 1070-1300 A.D. (Schoenwetter and Dittert, 1968).

Following A.D. 1300, climatic patterns returned to winter dominant rainfall. Also at this time, the Bradshaw Mountains and the upper Agua Fria drainage were abandoned by the Hohokam (Barnett, 1974; Ward, 1975), apparently a result of this climatic change. These populations appear then to have re-occupied the middle drainage--Perry Mesa area and expanded considerably in the Bloody Basin area, resulting in extremely high population densities throughout the area between the middle Agua Fria and Verde Rivers (Fish, Moberly, and Pilles, 1975; Gumerman, Weed, and Hanson, 1976; Tonto National Forest Archeological Site Inventory). This occupation and the lower Agua Fria population continued into the 15th century, when much of Central Arizona was apparently abandoned concurrently with the collapse of the Classic Period Hohokam Cultural system. After this time, the only inhabitants of the Agua Fria drainage, the Bradshaw Mountains, and the Prescott areas were the historic Hualapai in the north and Yavapai in the south. The implication is that these historically known groups may represent a briefly acculturated native population that made up part of the Northwestern portion of the Prescott Branch and a continuation of a Yuman expansion into this area which followed the retraction or demise of the Cohonina tradition at about 1150 A.D.

This overview of prehistoric cultural development in the greater Agua Fria River drainage must serve only as a framework from which to develop hypotheses for testing. While it is based primarily on empirical data (site records and artifact analyses), it suffers from a lack of systematic research in the area. It also conflicts in large part with traditional views, which hold that the major

occupation of the middle Agua Fria drainage-Verde River area was Sinagua or Salado, on the assumption that these assemblages are separable from Hohokam and exhibit different origins. However, it follows a trend which has developed in recent years (Jeter, 1977; Ward, 1975) towards the recognition of the far-ranging influences and implications of the Hohokam expansion into a variety of environmental and cultural contact zones in Central Arizona. As such, it should be taken only as another first approximation of a complex developmental phenomenon.

Summary of Conclusions

Briefly, analysis of various components of the Battle Flat cultural resource and their relationships to resources in other areas indicates that cultural properties in the Battle Flat watershed represent a brief occupation sometime during the period 1100 to 1300 A.D., by an agricultural population originating in the Hohokam tradition of the lowland-middle Agua Fria River drainage.

This occupation was apparently a response to deteriorating climatic and sedimentation conditions relative to agricultural needs during a time of drought and summer dominant rainfall patterns. The major resources which appear to have attracted a population to Battle Flat were soil, water availability, and growing season, which would have been longer then, than now, owing to different seasonal rainfall distributions.

Cultural Resources and Chaparral

The chaparral vegetation type in various associations covers approximately 4 million acres of land in Arizona, about half of which is held by the National Forests, primarily the Prescott and Tonto National Forests (USDA, 1975). At present, little is known about prehistoric cultural manifestations and patterns of land use in these chaparral areas, though they are known to contain a high site density in certain localities. Some of these areas have received some archeological attention, such as the Payson area on the Tonto National Forest (Wood and McAllister, 1976; Dittert, 1976; 1977; Hanson, 1976), and Copper Basin on the Prescott National Forest (Jeter, 1977). Other areas such as Brushy Basin and Bloody Basin on the Tonto or the Bradshaw Mountains and Camp Wood areas on the Prescott have received little or none. It is hoped that this study and others planned for the Camp Wood area will serve, with what has gone before, as a basis for conducting future research in these areas. The knowledge that most chaparral in Arizona is a relatively recent phenomenon, coupled with land use studies conducted in particular chaparral localities (e.g., this sutdy; Jeter, 1977) will hopefully provide a basis from which the importance of chaparral vegetation zones for prehistoric populations can be evaluated.

Mining Addendum

A small mining camp or village was located less than a mile north of the demonstration area in the 1880's. Named Bueno after the Bully Bueno Mine, a gold ledge located by Bob Grooms in 1863 or 1864, it was reportedly situated along the Senator Highway at about the point where Arrastra Creek joins Turkey Creek (Sherman and Sherman, 1969). Old USGS maps of the area (see Figure 2) indicate the presence of a few remaining buildings in this location. The early years of the village, which at one time contained 250 people, were apparently not too stable, owing to conflict with the Indians (Sherman and Sherman, 1969). The fact that Fred Henry chose to ride to Wagoner, rather than Bueno, may indicate that little, if any, permanent population was present at the mine. It may also have been that Grooms did not enter the area until after the Battle Flat incident. Since the Walnut Grove Mining Company of Philadelphia, Pennsylvania, reportedly moved in shortly after claims were filed with a twenty-stamp mill, the caretakers of which were soon attacked by Indians (Sherman and Sherman, 1969), a late 1864 date for the founding of the settlement seems more reasonable. Indian troubles apparently continued through the 1870's so that it was not until 1881 that the village had gathered enough people to warrant a post office. Through the 1880's, Bueno was reportedly a peaceful town with its own general store, meat market, school, and justice of the peace (Sherman and Sherman, 1969). Nevertheless, the gold and silver eventually ran out and by 1893, the post office was discontinued, and the village was essentially abandoned (Granger, 1960; Sherman and Sherman, 1969).

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